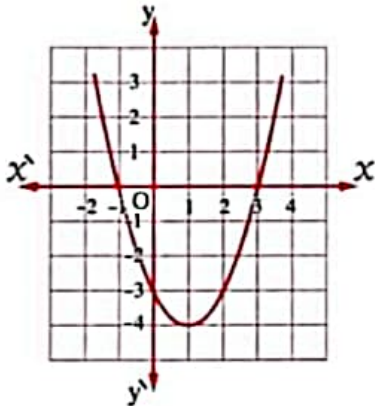


**[ B ] Choose the correct : -**

1	<p>The simplest form of the imaginary number <math>(i)^{73} = \dots\dots\dots</math></p> <p>(a) <math>-1</math>                      (b) <math>1</math>                      (c) <math>i</math>                      (d) <math>-i</math></p> <p>2021 Exam ( 7 ) Question ( 25 )</p>
2	<p>The simplest form of the imaginary number <math>i^{-43} = \dots\dots\dots</math></p> <p>(a) <math>i</math>                      (b) <math>-i</math>                      (c) <math>1</math>                      (d) <math>-1</math></p> <p>2021 Exam ( 6 ) Question ( 5 )</p>
3	<p><math>(1 - i)^{12} = \dots\dots\dots</math></p> <p>(a) <math>-64i</math>                      (b) <math>64i</math>                      (c) <math>-64</math>                      (d) <math>64</math></p> <p>2021 Exam ( 7 ) Question ( 29 )</p>
4	<p>The conjugate of the number <math>(3 + \sqrt{-4})</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>-3 - 2i</math>                      (b) <math>3 + 2i</math>                      (c) <math>3 - 2i</math>                      (d) <math>-3 + 2i</math></p> <p>2021 Exam ( 10 ) Question ( 15 )</p>
5	<p>The conjugate of the number <math>(2 + i)^{-1}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>2 + i</math>                      (b) <math>2 - 1</math>                      (c) <math>\frac{2-i}{5}</math>                      (d) <math>\frac{2+i}{5}</math></p> <p>2021 Exam ( 4 ) Question ( 10 )</p>
6	<p>If <math>a = 5 + \sqrt{3}i</math>, <math>b = 5 - \sqrt{3}i</math>, then <math>ab = \dots\dots\dots</math></p> <p>(a) <math>28</math>                      (b) <math>25</math>                      (c) <math>21</math>                      (d) <math>7</math></p> <p>2021 Exam ( 2 ) Question ( 1 )</p>
7	<p><math>(\sqrt{2} + i)^4 (\sqrt{2} - i)^4 = \dots\dots\dots</math></p> <p>(a) <math>81</math>                      (b) <math>9</math>                      (c) <math>81i</math>                      (d) <math>9i</math></p> <p>2021 Exam ( 8 ) Question ( 1 )</p>
8	<p><math>(1 + i)^4 + (1 - i)^4 = \dots\dots\dots</math></p> <p>(a) <math>0</math>                      (b) <math>8</math>                      (c) <math>-8</math>                      (d) <math>4</math></p> <p>2021 Exam ( 3 ) Question ( 3 )</p>
9	<p>The simplest form of the expression <math>(1 + i)^2 + (1 - i)(1 + i) - 2 = \dots\dots\dots</math></p> <p>(a) <math>2</math>                      (b) <math>-2</math>                      (c) <math>2i</math>                      (d) <math>-2i</math></p> <p>2021 Exam ( 9 ) Question ( 3 )</p>

10	<p>If <math>12 + 3ai = 4b - 27i</math>, then <math>(a, b) = \dots\dots\dots</math></p> <p>(a) (4, 3)                      (b) (3, 2.7)                      (c) (-9, 3)                      (d) (9, 3)</p> <p style="text-align: right;">2021 Exam (5) Question (33)</p>
11	<p>If <math>2x - y + (x - 2y)i = 8 + i</math>, then <math>(x, y) = \dots\dots\dots</math></p> <p>(a) (1, 3)                      (b) (3, 1)                      (c) (-3, 1)                      (d) (5, 2)</p> <p style="text-align: right;">2021 Exam (3) Question (4)</p>
12	<p>The simplest form of the number <math>\frac{1+i}{i}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>1 + i</math>                      (b) <math>1 - i</math>                      (c) <math>-1 - i</math>                      (d) <math>-1 + i</math></p> <p style="text-align: right;">2021 Exam (8) Question (12)</p>
13	<p>If <math>a + bi = \frac{5}{2+i}</math>, then <math>(a, b) = \dots\dots\dots</math></p> <p>(a) (-2, -1)                      (b) (-2, 1)                      (c) (2, -1)                      (d) (2, 1)</p> <p style="text-align: right;">2021 Exam (9) Question (8)</p>
14	<p>If <math>(2 + i)(3 - 5i^5) = (x + yi)</math>, then <math>x + y = \dots\dots\dots</math></p> <p>(a) 4                      (b) 5                      (c) 6                      (d) 7</p> <p style="text-align: right;">2021 Exam (1) Question (32)</p>
15	<p>If <math>a + bi = \frac{2+i}{2-i}</math>, then <math>a^2 + b^2 = \dots\dots\dots</math></p> <p>(a) 1                      (b) -1                      (c) 2                      (d) -i</p> <p style="text-align: right;">2021 Exam (6) Question (27)</p>
16	<p>The roots of the equation : <math>2x^2 - 5x + 3 = 0</math> are <math>\dots\dots\dots</math></p> <p>(a) rational real                      (b) not real                      (c) real and equal                      (d) irrational real</p> <p style="text-align: right;">2021 Exam (10) Question (35)</p>
17	<p>The roots of the equation : <math>x^2 - 2\sqrt{5}x + 1 = 0</math> are <math>\dots\dots\dots</math></p> <p>(a) rational real.                      (b) not real.                      (c) real equal.                      (d) irrational real.</p> <p style="text-align: right;">2021 Exam (7) Question (28)</p>
18	<p>The two roots of the equation : <math>x + \frac{36}{x} = 12</math> where <math>x \neq 0</math> are <math>\dots\dots\dots</math></p> <p>(a) real and equal.                      (b) real and different. (c) complex and not real.                      (d) conjugate to each other.</p> <p style="text-align: right;">2021 Exam (3) Question (6)</p>

19	<p>The solution set of the equation : <math>x^2 + 16 = 0</math> in the set of complex number is .....</p> <p>(a) <math>\{4i\}</math>                      (b) <math>\{-4i\}</math>                      (c) <math>\{4i, -4i\}</math>                      (d) <math>\{4\}</math></p> <p style="text-align: right;">2021 Exam ( 1 ) Question ( 38 )</p>
20	<p>If the curve of the function <math>f : f(x) = x^2 - 6x + m</math> doesn't cut the <math>x</math>-axis , then <math>m \in</math> .....</p> <p>(a) <math>\{9\}</math>                      (b) <math>]9, \infty[</math>                      (c) <math>]-\infty, 9[</math>                      (d) <math>[9, \infty[</math></p> <p style="text-align: right;">2021 Exam ( 9 ) Question ( 19 )</p>
21	<p><b>In the opposite figure :</b></p> <p>The curve of the function <math>f : f(x) = x^2 - 2x - 3</math>  , then the solution set of the inequality <math>x^2 - 2x - 3 \geq 0</math>  in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>]-1, 3[</math>  (b) <math>]-\infty, 2[</math>  (c) <math>]3, \infty[</math>  (d) <math>]-\infty, -1] \cup [3, \infty[</math></p> <div style="text-align: right;">  </div> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 29 )</p>
22	<p>The equation : <math>x^2(x-1)(x+1) = 0</math> of the ..... degree.</p> <p>(a) first                      (b) second                      (c) third                      (d) fourth</p> <p style="text-align: right;">2021 Exam ( 5 ) Question ( 26 )</p>
23	<p>If the two roots of the equation : <math>4x^2 - 12x + c = 0</math> are real and equal , then <math>c =</math> .....</p> <p>(a) 3                      (b) 4                      (c) 9                      (d) 16</p> <p style="text-align: right;">2021 Exam ( 7 ) Question ( 26 )</p>
24	<p>If the two roots of the equation : <math>x^2 + (2k+3)x + k^2 = 0</math> are real and equal , then the value of <math>k =</math> .....</p> <p>(a) <math>\frac{3}{4}</math>                      (b) <math>-\frac{3}{4}</math>                      (c) <math>\frac{4}{3}</math>                      (d) <math>-\frac{4}{3}</math></p> <p style="text-align: right;">2021 Exam ( 9 ) Question ( 1 )</p>
25	<p>If the equation : <math>x^2 - 6x + m = 0</math> has two equal real roots , then <math>m =</math> .....</p> <p>(a) 7                      (b) 8                      (c) 9                      (d) 10</p> <p style="text-align: right;">2021 Exam ( 2 ) Question ( 5 )</p>
26	<p>If the two roots of the equation : <math>ax^2 + b = 0</math> are real and different , then .....</p> <p>(a) <math>ab &gt; 0</math>                      (b) <math>a = 0</math>                      (c) <math>a &gt; 0, b &gt; 0</math>                      (d) <math>ab &lt; 0</math></p>



	2021 Exam ( 4 ) Question ( 12 )
27	<p>If the two roots of the equation : <math>16x^2 - 8x + k = 0</math> are complex and not real , then <math>k \in \dots\dots\dots</math></p> <p>(a) <math>]1, \infty[</math> (b) <math>]-\infty, 1[</math> (c) <math>]-\infty, -1[</math> (d) <math>]-\infty, -1]</math></p> <p>2021 Exam ( 3 ) Question ( 5 )</p>
28	<p>If the two roots of the equation : <math>(x - k)^2 + 4x = 0</math> are additive inverse to each other , then <math>k = \dots\dots\dots</math></p> <p>(a) - 2 (b) zero (c) 2 (d) 4</p> <p>2021 Exam ( 1 ) Question ( 1 )</p>
29	<p>If one of the two roots of the equation : <math>x^2 - (k + 2)x + 3 = 0</math> is the additive inverse of the other root , then <math>k = \dots\dots\dots</math></p> <p>(a) 3 (b) 2 (c) - 2 (d) - 3</p> <p>2021 Exam ( 5 ) Question ( 22 )</p>
30	<p>If one of the two roots of the equation : <math>kx^2 + (k - 1)x - 3 = 0</math> is the additive inverse of the other root , then <math>k = \dots\dots\dots</math></p> <p>(a) 3 (b) - 3 (c) 1 (d) - 1</p> <p>2021 Exam ( 8 ) Question ( 3 )</p>
31	<p>If one of the roots of the equation : <math>(m - 3)x^2 + 5x + 7 = 0</math> is the multiplicative inverse of the other , then <math>m = \dots\dots\dots</math></p> <p>(a) 10 (b) 3 (c) 8 (d) 2</p> <p>2021 Exam ( 2 ) Question ( 12 )</p>
32	<p>If one of the roots of the equation : <math>mx^2 - 3x + 1 = 0</math> is multiplicative inverse of the other , then <math>m = \dots\dots\dots</math></p> <p>(a) - 3 (b) - 1 (c) 1 (d) 2</p> <p>2021 Exam ( 1 ) Question ( 6 )</p>
33	<p>If the product of two roots of the equation : <math>(k - 2)x^2 - 6x + 12 = 0</math> is 3 , then <math>k = \dots\dots\dots</math></p> <p>(a) 4 (b) 38 (c) 6 (d) zero</p> <p>2021 Exam ( 6 ) Question ( 31 )</p>

34	<p>The product of the roots of the equations : <math>aX^2 + bX + c = 0</math> , <math>bX^2 + cX + a = 0</math> , <math>cX^2 + aX + b = 0</math> equals .....</p> <p>(a) <math>abc</math>                      (b) <math>-1</math>                      (c) <math>1</math>                      (d) zero</p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 17 )</p>
35	<p>If the sum of the two roots of the equation : <math>aX^2 + bX + c = 0</math> equal the product of its the roots , then <math>c =</math> .....</p> <p>(a) <math>-a</math>                      (b) <math>-b</math>                      (c) <math>a</math>                      (d) <math>b</math></p> <p style="text-align: right;">2021 Exam ( 8 ) Question ( 11 )</p>
36	<p>If <math>X = 5</math> is a root of the equation : <math>X^2 + mX = 3m + 1</math> , then <math>m =</math> .....</p> <p>(a) <math>-12</math>                      (b) <math>7</math>                      (c) <math>\frac{29}{3}</math>                      (d) <math>-\frac{29}{3}</math></p> <p style="text-align: right;">2021 Exam ( 3 ) Question ( 1 )</p>
37	<p>If <math>(3 + i)</math> is one of the roots of the equation <math>X^2 + kX + 10 = 0</math> where the coefficient of its terms are real numbers , then <math>k =</math> .....</p> <p>(a) <math>6</math>                      (b) <math>-6</math>                      (c) <math>9</math>                      (d) <math>-9</math></p> <p style="text-align: right;">2021 Exam ( 1 ) Question ( 27 )</p>
38	<p>If <math>2, 3</math> are the two roots of the equation : <math>X^2 + aX + b = 0</math> , then <math>(a, b) =</math> .....</p> <p>(a) <math>(2, 3)</math>                      (b) <math>(5, 6)</math>                      (c) <math>(-5, -6)</math>                      (d) <math>(-5, 6)</math></p> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 19 )</p>
39	<p>If the difference between the two roots of the equation : <math>X^2 - 7X + a = 0</math> is <math>3</math> , then the value of <math>a =</math> .....</p> <p>(a) <math>4</math>                      (b) <math>2</math>                      (c) <math>-4</math>                      (d) <math>10</math></p> <p style="text-align: right;">2021 Exam ( 3 ) Question ( 9 )</p>
40	<p>If <math>m, \frac{2}{m}</math> are the roots of the equation <math>aX^2 + bX + 12 = 0</math> , then <math>a =</math> .....</p> <p>(a) <math>3</math>                      (b) <math>5</math>                      (c) <math>6</math>                      (d) <math>9</math></p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 32 )</p>
41	<p>If <math>L, L^2</math> are the roots of the equation : <math>2X^2 + bX + 54 = 0</math> , then <math>b =</math> .....</p> <p>(a) <math>-12</math>                      (b) <math>-24</math>                      (c) <math>6</math>                      (d) <math>9</math></p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 18 )</p>

42	<p>If L and <math>5 - L</math> are the roots of the equation : <math>x^2 + m x + 6 = 0</math> , then <math>m = \dots\dots\dots</math></p> <p>(a) <math>-5</math>                      (b) <math>5</math>                      (c) <math>3</math>                      (d) <math>7</math></p> <p style="text-align: right;">2021 Exam ( 2 ) Question ( 8 )</p>
43	<p>If the two roots of the equation : <math>x^2 + b x + c = 0</math> are two consecutive odd numbers , then the value of the expression <math>(b^2 - 4 c) = \dots\dots\dots</math></p> <p>(a) <math>1</math>                      (b) <math>2</math>                      (c) <math>3</math>                      (d) <math>4</math></p> <p style="text-align: right;">2021 Exam ( 9 ) Question ( 14 )</p>
44	<p>If the two roots of the equation : <math>8 x^2 - k x + 3 = 0</math> are positive and the ratio between them is <math>2 : 3</math> , then the value of <math>k = \dots\dots\dots</math></p> <p>(a) <math>10</math>                      (b) <math>-10</math>                      (c) <math>\frac{5}{4}</math>                      (d) <math>-\frac{5}{4}</math></p> <p style="text-align: right;">2021 Exam ( 3 ) Question ( 7 )</p>
45	<p>If one of the two roots of the equation : <math>x^2 - 9 x + c = 0</math> is twice the other root , then <math>c = \dots\dots\dots</math></p> <p>(a) <math>9</math>                      (b) <math>-9</math>                      (c) <math>18</math>                      (d) <math>-18</math></p> <p style="text-align: right;">2021 Exam ( 8 ) Question ( 5 )</p>
46	<p>If L , M are the two roots of the equation : <math>x^2 + 3 x - 4 = 0</math> , then <math>LM = \dots\dots\dots</math></p> <p>(a) <math>3</math>                      (b) <math>-3</math>                      (c) <math>4</math>                      (d) <math>-4</math></p> <p style="text-align: right;">2021 Exam ( 7 ) Question ( 24 )</p>
47	<p>If L and M are the two roots of the equation : <math>x^2 + 2 x + 5 = 0</math> , then <math>L^2 M^2 = \dots\dots\dots</math></p> <p>(a) <math>5</math>                      (b) <math>10</math>                      (c) <math>25</math>                      (d) <math>4</math></p> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 40 )</p>
48	<p>If L and M are the two roots of the equation : <math>x^2 - 4 x + 2 = 0</math> where <math>L &gt; M</math> , then the numerical value of <math>(L^2 + M^2) = \dots\dots\dots</math></p> <p>(a) <math>15</math>                      (b) <math>12</math>                      (c) <math>9</math>                      (d) <math>16</math></p> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 20 )</p>
49	<p>If L , M are the two roots of the equation : <math>x^2 + 3 x + 1 = 0</math> , then the value of the expression : <math>L^2 + 3 LM + M^2 = \dots\dots\dots</math></p> <p>(a) <math>10</math>                      (b) <math>-10</math>                      (c) <math>9</math>                      (d) <math>-9</math></p> <p style="text-align: right;">2021 Exam ( 9 ) Question ( 4 )</p>



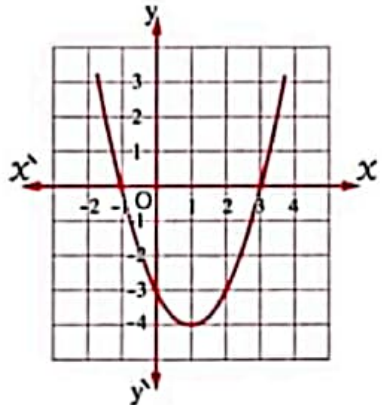
50	<p>If L , M are two roots of the equation : <math>x^2 - 21x + 4 = 0</math> , then <math>\sqrt{L} + \sqrt{M} = \dots\dots\dots</math></p> <p>(a) 25                      (b) 5                      (c) - 5                      (d) <math>\pm 5</math></p> <p style="text-align: right;">2021 Exam ( 5 ) Question ( 5 )</p>
51	<p>If L and M are two roots of the equation : <math>x^2 - x - 2 = 0</math> where <math>L &gt; M</math> , then <math>2L + 5M^2 = \dots\dots\dots</math></p> <p>(a) 10                      (b) 5                      (c) 9                      (d) 11</p> <p style="text-align: right;">2021 Exam ( 1 ) Question ( 21 )</p>
52	<p>If L and M are the roots of the equation : <math>x^2 - 6x + 2 = 0</math> , then <math>L^2 - 6L = \dots\dots\dots</math></p> <p>(a) 2                      (b) - 2                      (c) 4                      (d) 3</p> <p style="text-align: right;">2021 Exam ( 2 ) Question ( 7 )</p>
53	<p>The quadratic equation whose terms coefficients are real numbers and one of its roots is <math>(2 - i)</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>x^2 - 4x + 5 = 0</math>   (b) <math>x^2 + 4x - 5 = 0</math>   (c) <math>x^2 - 4x - 5 = 0</math>   (d) <math>x^2 + 4x + 5 = 0</math></p> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 33 )</p>
54	<p>The quadratic equation whose two roots are <math>(2 - 3i)</math> , <math>(2 + 3i)</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>x^2 + 4x + 13 = 0</math>                      (b) <math>x^2 - 4x + 13 = 0</math>  (c) <math>x^2 + 4x - 13 = 0</math>                      (d) <math>x^2 - 4x - 13 = 0</math></p> <p style="text-align: right;">2021 Exam ( 5 ) Question ( 20 )</p>
55	<p>The quadratic equation which its two roots are the two dimensions of the rectangle its area <math>12 \text{ cm}^2</math> and its perimeter <math>14 \text{ cm}</math>. is <math>\dots\dots\dots</math></p> <p>(a) <math>x^2 + 7x + 12 = 0</math>                      (b) <math>x^2 - 7x + 12 = 0</math>  (c) <math>x^2 + 12x + 7 = 0</math>                      (d) <math>x^2 - 12x + 7 = 0</math></p> <p style="text-align: right;">2021 Exam ( 9 ) Question ( 7 )</p>
56	<p>If L and M are the two roots of the equation : <math>x^2 - 7x + 3 = 0</math> , then the quadratic equation whose roots are <math>3L</math> , <math>3M</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>x^2 - 14x + 12 = 0</math>                      (b) <math>x^2 + 14x + 12 = 0</math>  (c) <math>x^2 - 21x + 27 = 0</math>                      (d) <math>x^2 + 14x - 12 = 0</math></p> <p style="text-align: right;">2021 Exam ( 3 ) Question ( 8 )</p>

57	<p>If L and M are the roots of the equation <math>X^2 - 3X = -5</math>, then the equation with roots L + 1 and M + 1 is .....</p> <p>(a) <math>X^2 - 9X + 5 = 0</math> (b) <math>X^2 - 5X + 9 = 0</math> (c) <math>X^2 - 5X - 3 = 0</math> (d) <math>X^2 + 3X + 5 = 0</math></p> <p>2021 Exam ( 1 ) Question ( 28 )</p>
58	<p>If L and M are two roots of the equation : <math>X^2 - 5X + 6 = 0</math>, then the equation whose roots are L - M, M - L is .....</p> <p>(a) <math>X^2 + 1 = 0</math> (b) <math>X^2 - 1 = 0</math> (c) <math>X^2 + 25 = 0</math> (d) <math>X^2 - X = 0</math></p> <p>2021 Exam ( 6 ) Question ( 29 )</p>
59	<p>The sign of <math>f : f(X) = -5</math> is positive at <math>X \in</math> .....</p> <p>(a) <math>]-\infty, -5[</math> (b) <math>]-5, \infty[</math> (c) <math>]-\infty, \infty[</math> (d) <math>\emptyset</math></p> <p>2021 Exam ( 7 ) Question ( 32 )</p>
60	<p>The function <math>f : \text{where } f(X) = 2</math> is positive in the interval .....</p> <p>(a) <math>]-\infty, 2[</math> (b) <math>[-2, 2]</math> (c) <math>]-\infty, \infty[</math> (d) <math>]-\infty, -2[</math></p> <p>2021 Exam ( 6 ) Question ( 23 )</p>
61	<p>The function <math>f : [-3, 8] \longrightarrow \mathbb{R}</math> where <math>f(X) = 8 - 2X</math> is positive in the interval .....</p> <p>(a) <math>[-3, 4[</math> (b) <math>[-4, 4]</math> (c) <math>]-3, 4[</math> (d) <math>]-2, 2[</math></p> <p>2021 Exam ( 6 ) Question ( 33 )</p>
62	<p>The function <math>f : f(X) = 7 - X</math> is not negative where :</p> <p>(a) <math>X \geq 7</math> (b) <math>X &gt; 7</math> (c) <math>X \leq 7</math> (d) <math>X = 7</math></p> <p>2021 Exam ( 8 ) Question ( 7 )</p>
63	<p>If <math>[-3, 2] \longrightarrow \mathbb{R}</math>, <math>f(X) = 3X + 6</math>, then the sign of the function <math>f</math> is negative in the interval .....</p> <p>(a) <math>]-2, \infty[</math> (b) <math>[-3, -2[</math> (c) <math>]-\infty, -2[</math> (d) <math>[-2, 2]</math></p> <p>2021 Exam ( 3 ) Question ( 10 )</p>
64	<p>The sign of <math>f : f(X) = -X</math> is negative at .....</p> <p>(a) <math>X &gt; -1</math> (b) <math>X &lt; -1</math> (c) <math>X &gt; 0</math> (d) <math>X &lt; 0</math></p> <p>2021 Exam ( 10 ) Question ( 17 )</p>
65	<p>The sign of the function <math>f : f(X) = 8 - 4X</math> is not positive when .....</p> <p>(a) <math>X \geq 2</math> (b) <math>X &gt; 2</math> (c) <math>X &lt; 2</math> (d) <math>X \leq 2</math></p>



	2021 Exam ( 9 ) Question ( 18 )
66	<p>If the sign of <math>f(x) = kx - 10</math> is positive on the interval <math>]5, \infty[</math> and negative on the interval <math>]-\infty, 5[</math>, then <math>k = \dots\dots\dots</math></p> <p>(a) 5                      (b) -2                      (c) 2                      (d) -10</p> <p>2021 Exam ( 1 ) Question ( 2 )</p>
67	<p>If <math>f(x) = x^2 + 9</math>, then the solution set of the inequality <math>f(x) \leq 0</math> in <math>\mathbb{R}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>\{-3, 3\}</math>                      (b) <math>]3, \infty[</math>                      (c) <math>]-\infty, 3[</math>                      (d) <math>\emptyset</math></p> <p>2021 Exam ( 1 ) Question ( 36 )</p>
68	<p>The function <math>f : f(x) = (3 - x)^2</math> is positive for all <math>x \in \dots\dots\dots</math></p> <p>(a) <math>]3, \infty[</math>                      (b) <math>]-\infty, 3[</math>                      (c) <math>\mathbb{R} - \{3\}</math>                      (d) <math>]-3, 3[</math></p> <p>2021 Exam ( 8 ) Question ( 8 )</p>
69	<p>The function <math>f : f(x) = -(x - 1)(x + 2)</math> is positive in the interval <math>\dots\dots\dots</math></p> <p>(a) <math>]1, 2[</math>                      (b) <math>[-1, 2]</math>                      (c) <math>]-2, 1[</math>                      (d) <math>]-\infty, \infty[</math></p> <p>2021 Exam ( 4 ) Question ( 25 )</p>
70	<p>If the function <math>f : f(x) = ax^2 + bx + c</math> and <math>a &lt; 0</math> and the two roots of the equation <math>f(x) = 0</math> are 2, -5, then the function <math>f</math> is positive in <math>\dots\dots\dots</math></p> <p>(a) <math>\{-5, 2\}</math>                      (b) <math>\mathbb{R} - ]-5, 2[</math>                      (c) <math>]-5, 2[</math>                      (d) <math>[-5, 2]</math></p> <p>2021 Exam ( 10 ) Question ( 9 )</p>
71	<p>If the function <math>f : f(x) = ax^2 + bx + c</math>, <math>a &gt; 0</math> and the two roots of <math>f(x) = 0</math> are 2, -5, then the function <math>f</math> is positive in <math>\dots\dots\dots</math></p> <p>(a) <math>\{-5, 2\}</math>                      (b) <math>\mathbb{R} - ]-5, 2[</math>                      (c) <math>]-5, 2[</math>                      (d) <math>\mathbb{R} - [-5, 2]</math></p> <p>2021 Exam ( 3 ) Question ( 11 )</p>
72	<p>Which of the following functions is positive for all values of <math>x \in \mathbb{R}</math> :</p> <p>(a) <math>f : f(x) = x^2 + 4</math>                      (b) <math>f : f(x) = (x - 1)^2 + 9</math></p> <p>(c) <math>f : f(x) = 3</math>                      (d) all of (a), (b), (c)</p> <p>2021 Exam ( 4 ) Question ( 29 )</p>
73	<p>The function <math>f : f(x) = x^2 - 9</math> is negative at <math>x \in \dots\dots\dots</math></p> <p>(a) <math>\mathbb{R} - [-3, 3]</math>                      (b) <math>]-3, 3[</math>                      (c) <math>]-\infty, -9[</math>                      (d) <math>]-\infty, -3[</math></p> <p>2021 Exam ( 10 ) Question ( 6 )</p>

74	<p>The function <math>f</math> where <math>f(x) = (x-1)(x+3)</math> is negative in the interval .....</p> <p>(a) <math>]-3, 1[</math> (b) <math>]-1, 3[</math> (c) <math>[-3, -1]</math> (d) <math>]-3, 3[</math></p> <p>2021 Exam (6) Question (22)</p>
75	<p>If <math>L, M</math> are the two roots of the equation : <math>ax^2 + bx + c = 0</math> where <math>a &gt; 0, L &lt; M</math>, then the solution set of the inequality : <math>ax^2 + bx + c &lt; 0</math> is .....</p> <p>(a) <math>]-\infty, L[</math> (b) <math>]L, M[</math> (c) <math>]M, \infty[</math> (d) <math>\mathbb{R} - [L, M]</math></p> <p>2021 Exam (7) Question (30)</p>
76	<p>The function which has a positive sign in <math>\mathbb{R} - \{2\}</math> is <math>f(x) = \dots\dots\dots</math></p> <p>(a) <math>(x-2)(x+2)</math> (b) <math>x^2 - 4x + 4</math> (c) <math>x - 2</math> (d) <math>(x+2)^2</math></p> <p>2021 Exam (1) Question (7)</p>
77	<p>If the discriminant of the equation : <math>ax^2 + bx + c = 0</math> is negative, then the solution set of the inequality : <math>ax^2 + bx + c &lt; 0</math>, where <math>a &lt; 0</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>\mathbb{R}</math> (b) <math>\emptyset</math> (c) <math>\mathbb{R}^+</math> (d) <math>\mathbb{R}^-</math></p> <p>2021 Exam (5) Question (15)</p>
78	<p>The two functions <math>f : f(x) = (x-1)(x+2)</math> and <math>g : g(x) = -x^2 + 9</math> are positive together when <math>x \in \dots\dots\dots</math></p> <p>(a) <math>]1, 3[ \cup ]-3, -2[</math> (b) <math>]-2, 0[</math>  (c) <math>]3, \infty[ \cup ]-\infty, -3[</math> (d) <math>]-3, 3[</math></p> <p>2021 Exam (5) Question (18)</p>
79	<p>If <math>(y-4)^2 = 36, y &lt; 0</math>, then <math>y+4 = \dots\dots\dots</math></p> <p>(a) <math>-2</math> (b) <math>2</math> (c) <math>10</math> (d) <math>14</math></p> <p>2021 Exam (4) Question (1)</p>
80	<p>Which of the following does not belong to the solution set of the inequality : <math>3x - 5 \geq 4x - 3</math> ?</p> <p>(a) <math>-1</math> (b) <math>-2</math> (c) <math>-3</math> (d) <math>-5</math></p> <p>2021 Exam (5) Question (13)</p>
81	<p>The solution set of the inequality : <math>x^2 \geq 4x + 21</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>[-3, 7]</math> (b) <math>\mathbb{R} - ]-3, 7[</math> (c) <math>\mathbb{R} - \{-3, 7\}</math> (d) <math>\{7\}</math></p> <p>2021 Exam (8) Question (9)</p>

82	<p>S.S. of the inequality : <math>9 - x^2 \geq 0</math> is .....</p> <p>(a) <math>] - 3 , 3[</math>      (b) <math>[- 3 , 3]</math>      (c) <math>\mathbb{R} - ] - 3 , 3[</math>      (d) <math>\mathbb{R} - [- 3 , 3]</math></p> <p>2021 Exam ( 2 ) Question ( 10 )</p>
83	<p>The solution set of the inequality : <math>4x - x^2 - 4 &lt; 0</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>\mathbb{R}</math>      (b) <math>\mathbb{R}^+</math>      (c) <math>\mathbb{R}^-</math>      (d) <math>\mathbb{R} - \{2\}</math></p> <p>2021 Exam ( 5 ) Question ( 40 )</p>
84	<p>The solution set of the inequality : <math>x(x + 3) &lt; 0</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>\{0 , - 3\}</math>      (b) <math>] - 3 , 2]</math>      (c) <math>[- 3 , 0[</math>      (d) <math>] - 3 , 0[</math></p> <p>2021 Exam ( 6 ) Question ( 19 )</p>
85	<p>The solution set of the inequality : <math>(x - 3)(x - 4) &gt; 0</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>\{3 , 4\}</math>      (b) <math>] 3 , 4[</math>      (c) <math>[ 3 , 4]</math>      (d) <math>\mathbb{R} - [ 3 , 4]</math></p> <p>2021 Exam ( 3 ) Question ( 12 )</p>
86	<p>The solution set of the inequality : <math>-x(x + 2) \geq 0</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>\{0 , - 2\}</math>      (b) <math>[- 2 , 0]</math>      (c) <math>] - 2 , 0[</math>      (d) <math>[- 2 , 2]</math></p> <p>2021 Exam ( 4 ) Question ( 31 )</p>
87	<p>The solution set of the inequality : <math>(2x - 3)^2 &gt; - 5</math> in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>\emptyset</math>      (b) <math>\mathbb{R}^+</math>      (c) <math>\mathbb{R}^-</math>      (d) <math>\mathbb{R}</math></p> <p>2021 Exam ( 9 ) Question ( 10 )</p>
88	<p><b>In the opposite figure :</b></p> <p>The curve of the function <math>f : f(x) = x^2 - 2x - 3</math>  , then the solution set of the inequality <math>x^2 - 2x - 3 \geq 0</math>  in <math>\mathbb{R}</math> is .....</p> <p>(a) <math>] - 1 , 3[</math>  (b) <math>] - \infty , 2[</math>  (c) <math>] 3 , \infty[</math>  (d) <math>] - \infty , - 1] \cup [ 3 , \infty[</math></p>  <p>2021 Exam ( 10 ) Question ( 29 )</p>



89	<p>The angle of measure <math>2109^\circ</math> lies in the ..... quadrant.</p> <p>(a) first                      (b) second                      (c) third                      (d) fourth</p> <p style="text-align: right;">2021 Exam ( 3 ) Question ( 13 )</p>
90	<p>The angle whose measure is <math>(-850^\circ)</math> lies in the ..... quadrant.</p> <p>(a) first                      (b) second                      (c) third                      (d) fourth</p> <p style="text-align: right;">2021 Exam ( 6 ) Question ( 14 )</p>
91	<p>The angle whose measure is <math>600^\circ</math> in the standard position is equivalent to the angle of measure .....<math>^\circ</math></p> <p>(a) 120                      (b) 240                      (c) 300                      (d) 420</p> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 2 )</p>
92	<p>The angle whose measure is <math>120^\circ</math> in the standard position is equivalent to the angle of measure .....</p> <p>(a) <math>420^\circ</math>                      (b) <math>240^\circ</math>                      (c) <math>-300^\circ</math>                      (d) <math>-240^\circ</math></p> <p style="text-align: right;">2021 Exam ( 8 ) Question ( 33 )</p>
93	<p>All the angles of the following measures lies in the second quadrant except .....</p> <p>(a) <math>-240^\circ</math>                      (b) <math>-120^\circ</math>                      (c) <math>100^\circ</math>                      (d) <math>860^\circ</math></p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 4 )</p>
94	<p>The degree measure of the angle of measure <math>\frac{7\pi}{6}</math> is .....</p> <p>(a) <math>105^\circ</math>                      (b) <math>210^\circ</math>                      (c) <math>420^\circ</math>                      (d) <math>840^\circ</math></p> <p style="text-align: right;">2021 Exam ( 8 ) Question ( 35 )</p>
95	<p>The angle of measure <math>\frac{-9\pi}{4}</math> lies in the ..... quadrant.</p> <p>(a) first                      (b) second                      (c) third                      (d) fourth</p> <p style="text-align: right;">2021 Exam ( 10 ) Question ( 27 )</p>
96	<p>The radian measure of the central angle opposite to an arc of length 6 cm. in a circle of diameter length 12 cm. is .....</p> <p>(a) <math>\left(\frac{1}{2}\right)^{\text{rad}}</math>                      (b) <math>(1)^{\text{rad}}</math>                      (c) <math>(3)^{\text{rad}}</math>                      (d) <math>(\pi)^{\text{rad}}</math></p> <p style="text-align: right;">2021 Exam ( 2 ) Question ( 13 )</p>

97	<p>A radian and degree measure of a central angle subtends an arc whose length 3 cm. in a circle whose surface area is <math>16 \pi \text{ cm}^2 = \dots\dots\dots</math> , <math>\dots\dots\dots</math></p> <p>(a) <math>1^{\text{rad}}</math> , <math>180^\circ</math> (b) <math>1.5^{\text{rad}}</math> , <math>86^\circ</math>  (c) <math>1.75^{\text{rad}}</math> , <math>90^\circ</math> (d) <math>0.75^{\text{rad}}</math> , <math>42^\circ 58'</math></p> <p style="text-align: right;">2021 Exam ( 5 ) Question ( 3 )</p>
98	<p>The arc of length <math>5 \pi \text{ cm}</math>. in a circle with radius length 15 cm. is opposite to central angle of measure <math>\dots\dots\dots^\circ</math></p> <p>(a) 30 (b) 60 (c) 90 (d) 180</p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 2 )</p>
99	<p>The arc length in a circle of radius 6 cm. , opposite to central angle of measure <math>\frac{\pi}{2}</math> is <math>\dots\dots\dots</math></p> <p>(a) <math>\frac{3 \pi}{2}</math> (b) <math>2 \pi</math> (c) <math>\frac{5 \pi}{2}</math> (d) <math>3 \pi</math></p> <p style="text-align: right;">2021 Exam ( 7 ) Question ( 33 )</p>
100	<p>In a circle of diameter length 24 cm. the length of the arc subtended by a central angle of measure <math>30^\circ</math> equals <math>\dots\dots\dots \text{ cm}</math>.</p> <p>(a) <math>2 \pi</math> (b) <math>3 \pi</math> (c) <math>4 \pi</math> (d) <math>\pi</math></p> <p style="text-align: right;">2021 Exam ( 6 ) Question ( 15 )</p>
101	<p>The string length of a simple pendulum is 14 cm. swings in an angle of measure <math>\frac{\pi}{10}</math> , then its arc length = <math>\dots\dots\dots \text{ cm}</math>.</p> <p>(a) 4.4 (b) 4.6 (c) 4.8 (d) 4.9</p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 20 )</p>
102	<p>The central angle with measure <math>120^\circ</math> and includes an arc with length <math>l \text{ cm}</math>. in a circle with radius 6 cm. , then <math>l \simeq \dots\dots\dots \text{ cm}</math>.</p> <p>(a) 12.57 (b) 10 (c) 125.4 (d) 1.254</p> <p style="text-align: right;">2021 Exam ( 1 ) Question ( 11 )</p>
103	<p>If the length of an arc in a circle equals <math>\frac{5}{8}</math> of its circumference , then the measure of the central angle subtending to this arc in degrees equals <math>\dots\dots\dots</math></p> <p>(a) <math>30^\circ</math> (b) <math>67^\circ 30'</math> (c) <math>225^\circ</math> (d) <math>240^\circ</math></p> <p style="text-align: right;">2021 Exam ( 3 ) Question ( 14 )</p>

104

If the ratio between measures of the interior angles of a quadrilateral is  $5 : 4 : 9 : 6$ , then the measure of the smallest angle equals .....

- (a)  $\frac{\pi}{12}$  (b)  $\frac{\pi}{3}$  (c)  $\frac{5\pi}{12}$  (d)  $\frac{2\pi}{3}$

2021 Exam ( 4 ) Question ( 22 )

105

Measure of the central angle subtends an arc whose length equals the diameter of the circle = .....° (Rounded to the nearest degree).

- (a) 113 (b) 115 (c) 120 (d) 180

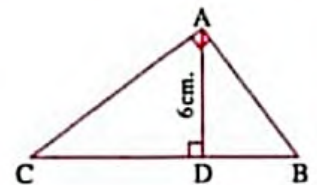
2021 Exam ( 5 ) Question ( 6 )

106

**In the opposite figure :**

If  $AD = 6$  cm. ,  $\tan B + \tan C = \frac{5}{3}$ , then  $BC =$  ..... cm.

- (a) 6 (b) 8  
(c) 10 (d) 14



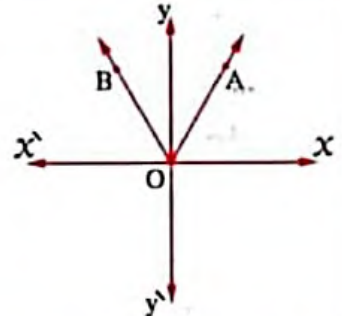
2021 Exam ( 4 ) Question ( 23 )

107

**In the opposite figure :**

If  $A(1, \sqrt{3})$ ,  $B(-1, \sqrt{3})$ , then  $\cot(\angle AOB) =$  .....

- (a) 1 (b)  $\frac{1}{2}$   
(c)  $\frac{1}{\sqrt{3}}$  (d)  $\sqrt{3}$



2021 Exam ( 5 ) Question ( 28 )

108

If ABCD is a cyclic quadrilateral and  $\sin A = \frac{3}{5}$ , then  $\sin C =$  .....

- (a)  $\frac{3}{5}$  (b)  $-\frac{3}{5}$  (c)  $\frac{4}{5}$  (d)  $-\frac{4}{5}$

2021 Exam ( 4 ) Question ( 26 )

109

$\tan^{-1}\left(\frac{1}{\sqrt{3}}\right) + \cot^{-1}(\sqrt{3}) =$  .....

- (a)  $\frac{\pi}{3}$  (b)  $\frac{\pi}{2}$  (c)  $\frac{3\pi}{2}$  (d)  $\frac{\pi}{6}$

2021 Exam ( 4 ) Question ( 35 )



In the opposite figure :

$$\theta^{\text{rad}} = \dots\dots\dots$$

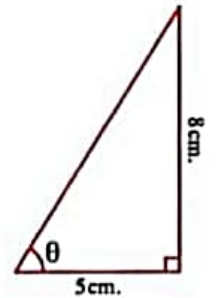
110

(a)  $1.5^{\text{rad}}$

(b)  $1.012^{\text{rad}}$

(c)  $2^{\text{rad}}$

(d)  $3^{\text{rad}}$



2021 Exam ( 10 ) Question ( 39 )

111

If  $\sec 3\theta = 2$  where  $\theta$  is an acute angle , then  $\theta = \dots\dots\dots^\circ$

(a) 10

(b) 15

(c) 20

(d) 30

2021 Exam ( 7 ) Question ( 38 )

112

If  $\sin \theta = -\frac{1}{2}$  ,  $\cos \theta = \frac{\sqrt{3}}{2}$  , then  $\theta = \dots\dots\dots^\circ$

(a) 30

(b) 150

(c) 210

(d) 330

2021 Exam ( 7 ) Question ( 39 )

113

If  $\sin \theta = -1$  ,  $\cos \theta = 0$  , then the measure of angle  $\theta = \dots\dots\dots$

(a)  $\frac{\pi}{2}$

(b)  $\pi$

(c)  $\frac{3\pi}{2}$

(d)  $2\pi$

2021 Exam ( 6 ) Question ( 4 )

114

If the terminal side of angle  $\theta$  in its standard position cut the unit circle at the point  $\left(-\frac{\sqrt{3}}{2}, y\right)$  where  $y \in \mathbb{R}^+$  , then  $\theta = \dots\dots\dots^\circ$

(a) 30

(b) 150

(c) 210

(d) 330

2021 Exam ( 9 ) Question ( 20 )

115

If the terminal side of the angle  $\theta$  in its standard position , cuts the unit circle at point  $\left(\frac{3}{5}, y\right)$  where  $y > 0$  , then  $\tan(\theta) = \dots\dots\dots$

(a)  $\frac{4}{3}$

(b)  $\frac{3}{4}$

(c)  $\frac{5}{4}$

(d) 1

2021 Exam ( 1 ) Question ( 12 )

116

If  $X \sin \frac{\pi}{4} \cos \frac{\pi}{4} = \tan^2 \frac{\pi}{4} + \cos^2 \frac{\pi}{3}$  , then  $X = \dots\dots\dots$

(a)  $\frac{\sqrt{3}}{2}$

(b)  $\frac{5}{2}$

(c)  $\frac{2}{\sqrt{3}}$

(d)  $-\frac{1}{\sqrt{2}}$

2021 Exam ( 3 ) Question ( 15 )

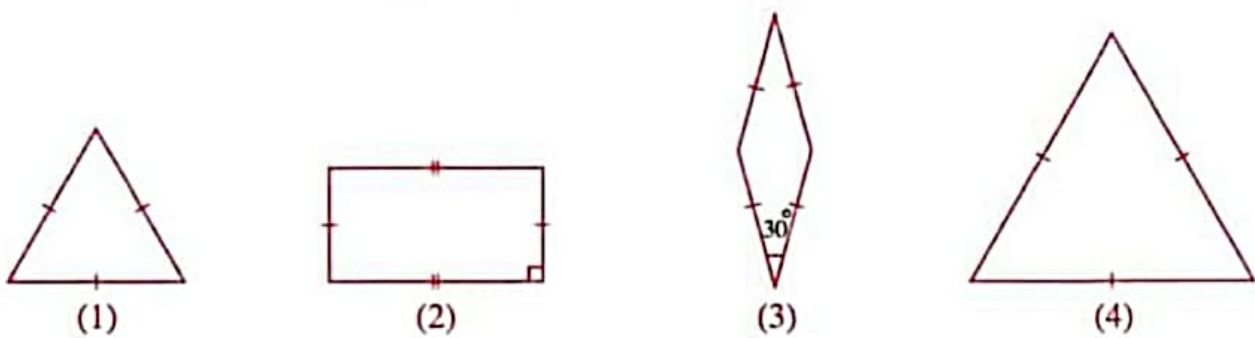
117	<p>If <math>\cos \alpha = \frac{-3}{5}</math>, <math>90^\circ &lt; \alpha &lt; 180^\circ</math>, <math>5 \sin \alpha + 3 \tan \alpha = \dots\dots\dots</math></p> <p>(a) 0 (b) 1 (c) -1 (d) 2</p> <p style="text-align: right;">2021 Exam (2) Question (20)</p>
118	<p>If <math>\theta \in ]\frac{\pi}{2}, \pi[</math>, <math>\sin \theta = \frac{12}{13}</math>, then the value of : <math>\tan \theta \cot \theta + \cos^2 \theta = \dots\dots\dots</math></p> <p>(a) <math>\frac{25}{169}</math> (b) <math>\frac{194}{169}</math> (c) <math>\frac{25}{144}</math> (d) <math>\frac{169}{25}</math></p> <p style="text-align: right;">2021 Exam (3) Question (16)</p>
119	<p>If <math>\sin (\theta + 10^\circ) = \frac{1}{2}</math> where <math>\theta \in ]0^\circ, \frac{\pi}{2}[</math>, then <math>m(\angle \theta) = \dots\dots\dots</math></p> <p>(a) <math>20^\circ</math> (b) <math>60^\circ</math> (c) <math>90^\circ</math> (d) <math>180^\circ</math></p> <p style="text-align: right;">2021 Exam (8) Question (37)</p>
120	<p>If <math>\cos^2 \theta = \frac{9}{25}</math> where <math>90^\circ &lt; \theta &lt; 180^\circ</math>, then the value of : <math>25 \sin \theta + 4 \cot \theta = \dots\dots\dots</math></p> <p>(a) 23 (b) 17 (c) -17 (d) -23</p> <p style="text-align: right;">2021 Exam (3) Question (20)</p>
121	<p><math>\cos (-30^\circ) = \dots\dots\dots</math></p> <p>(a) <math>-\sqrt{3}</math> (b) <math>-\frac{\sqrt{3}}{2}</math> (c) <math>\frac{2}{\sqrt{3}}</math> (d) <math>\frac{\sqrt{3}}{2}</math></p> <p style="text-align: right;">2021 Exam (8) Question (39)</p>
122	<p><math>\tan 495^\circ = \dots\dots\dots</math></p> <p>(a) 1 (b) -1 (c) <math>\frac{\sqrt{2}}{2}</math> (d) <math>\frac{1}{2}</math></p> <p style="text-align: right;">2021 Exam (1) Question (17)</p>
123	<p><math>\frac{\tan 65^\circ}{\cot 25^\circ} = \dots\dots\dots</math></p> <p>(a) 1 (b) 2 (c) <math>\frac{1}{2}</math> (d) 3</p> <p style="text-align: right;">2021 Exam (2) Question (17)</p>
124	<p>If <math>\theta</math> is a positive acute angle, <math>\frac{\sin (\theta + 10^\circ)}{\cos (40^\circ)} = 1</math>, then <math>\theta = \dots\dots\dots^\circ</math></p> <p>(a) 40 (b) 50 (c) 10 (d) 70</p> <p style="text-align: right;">2021 Exam (1) Question (26)</p>
125	<p><math>\frac{\sin 56^\circ}{\cos 34^\circ} + \tan 35^\circ \cot 35^\circ = \dots\dots\dots</math></p> <p>(a) -2 (b) zero (c) 1 (d) 2</p> <p style="text-align: right;">2021 Exam (9) Question (6)</p>

126	The simplest form of the expression : $\cos (180^\circ + \theta) + \sin (90^\circ + \theta) = \dots\dots\dots$ (a) $2 \sin \theta$ (b) $2 \cos \theta$ (c) 2 (d) zero 2021 Exam ( 9 ) Question ( 2 )
127	$2 \sin (360^\circ - \theta) + 3 \sin (-\theta) + 6 \cos (270^\circ + \theta) = \dots\dots\dots$ (a) zero (b) $7 \sin \theta$ (c) $11 \sin \theta$ (d) $\sin \theta$ 2021 Exam ( 9 ) Question ( 11 )
128	$\tan (180^\circ + \theta) \times \cot \theta = \dots\dots\dots$ (a) zero (b) -1 (c) $\cot \theta$ (d) 1 2021 Exam ( 10 ) Question ( 34 )
129	In a right-angled triangle , measure of one of its acute angles is $X^\circ$ where $\sin X = \frac{4}{5}$ , then $\cos (90^\circ - X^\circ) = \dots\dots\dots$ (a) $\frac{3}{5}$ (b) $-\frac{3}{5}$ (c) $-\frac{4}{5}$ (d) $\frac{4}{5}$ 2021 Exam ( 5 ) Question ( 12 )
130	If $A + B = 90^\circ$ and $\tan A = \frac{1}{3}$ , then $\tan B = \dots\dots\dots$ (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) 1 (d) 3 2021 Exam ( 4 ) Question ( 8 )
131	The value of $\theta$ where $0 \leq \theta \leq 90^\circ$ which satisfies : $\tan (\theta + 20^\circ) = \cot (3 \theta + 30^\circ)$ from the following is ..... (a) 40 (b) 10 (c) 90 (d) 50 2021 Exam ( 7 ) Question ( 36 )
132	If $\sin 3 \theta = \cos 6 \theta$ , $0^\circ < \theta < 90^\circ$ , then $\theta = \dots\dots\dots$ (a) $10^\circ$ (b) $15^\circ$ (c) $20^\circ$ (d) $25^\circ$ 2021 Exam ( 2 ) Question ( 19 )
133	If $\sin (3 \theta - 25^\circ) = \cos (2 \theta - 35^\circ)$ , where $0^\circ < \theta < 45^\circ$ , then the value of $\sin (180^\circ - \theta) = \dots\dots\dots$ (a) $\frac{1}{3}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$ 2021 Exam ( 9 ) Question ( 9 )





142	<p>The range of the function <math>f : f(x) = 3 \sin \theta</math> where <math>\pi &lt; \theta &lt; 2\pi</math> is .....</p> <p>(a) <math>[-3, 3]</math>                      (b) <math>[-3, 0]</math>                      (c) <math>[0, 3]</math>                      (d) <math>\mathbb{R}</math></p> <p style="text-align: right;">2021 Exam (9) Question (15)</p>
143	<p>If the range of the function <math>f : f(x) = a \sin(x)</math> where <math>x \in [0, 2\pi]</math> is <math>[-5, 5]</math>, then <math>a \in</math> .....</p> <p>(a) <math>\{5\}</math>                      (b) <math>\{-5\}</math>                      (c) <math>]-5, 5[</math>                      (d) <math>\{-5, 5\}</math></p> <p style="text-align: right;">2021 Exam (1) Question (37)</p>
144	<p>If <math>\theta = \sin^{-1} 0.6</math> where <math>\theta</math> is the measure of the smallest positive angle, then <math>\theta =</math> .....</p> <p>(a) <math>36^\circ 52'</math>                      (b) <math>52^\circ 36'</math>                      (c) <math>120^\circ 33'</math>                      (d) <math>40^\circ 15'</math></p> <p style="text-align: right;">2021 Exam (6) Question (10)</p>
145	<p>If the lengths of two corresponding sides of two similar triangles are 7 cm. , 11 cm. , then the ratio between their perimeters is .....</p> <p>(a) <math>\frac{49}{121}</math>                      (b) <math>\frac{7}{18}</math>                      (c) <math>\frac{7}{11}</math>                      (d) <math>\frac{11}{18}</math></p> <p style="text-align: right;">2021 Exam (4) Question (15)</p>
146	<p>If <math>k</math> is the similarity factor of polygon <math>P_1</math> to polygon <math>P_2</math> and <math>0 &lt; k &lt; 1</math>, then the polygon <math>P_1</math> is ..... to polygon <math>P_2</math></p> <p>(a) congruent                      (b) an enlargement                      (c) a shrinking                      (d) twice the area</p> <p style="text-align: right;">2021 Exam (4) Question (5)</p>
147	<p>If polygon <math>m_1</math> is minimize of polygon <math>m_2</math>, with scale factor <math>k</math>, then .....</p> <p>(a) <math>k &gt; 1</math>                      (b) <math>k &lt; 1</math>                      (c) <math>k = 1</math>                      (d) <math>0 &lt; k &lt; 1</math></p> <p style="text-align: right;">2021 Exam (9) Question (39)</p>
148	<p>The rhombus in which measure of one of its angles <math>70^\circ</math> is similar to the rhombus which measure of one of its angles = .....</p> <p>(a) <math>100^\circ</math>                      (b) <math>110^\circ</math>                      (c) <math>120^\circ</math>                      (d) <math>130^\circ</math></p> <p style="text-align: right;">2021 Exam (8) Question (15)</p>
149	<p>The polygon <math>ABCD \sim</math> the polygon <math>XYZL</math>, <math>AB = 32</math> cm. , <math>BC = 40</math> cm. , <math>XY = 3m - 1</math>, <math>YZ = 3m + 1</math>, then the numerical value of <math>m =</math> .....</p> <p>(a) 3                      (b) 4                      (c) 5                      (d) 6</p> <p style="text-align: right;">2021 Exam (5) Question (36)</p>

150	Two regular pentagon polygons the side length of the first = 5 cm. and the perimeter of the second = 30 cm. , then the ratio between side length of the first : the side length of the second = .....	(a) 1 : 6                      (b) 1 : 2                      (c) 1 : 5                      (d) 5 : 6	2021 Exam ( 8 ) Question ( 16 )
151	Two similar rectangles , the length of the first is three times its width , if the length of the second 12 cm. , then its width = ..... cm.	(a) 2                      (b) 3                      (c) 4                      (d) 6	2021 Exam ( 8 ) Question ( 32 )
152	The dimensions of a rectangle are 10 cm. , 6 cm. if the scale factor equals 3 , then the perimeter of another of rectangle similar to it = ..... cm.	(a) 96                      (b) 69                      (c) 15                      (d) 30	2021 Exam ( 10 ) Question ( 4 )
153	All ..... are similar.	(a) triangles                      (b) rectangles                      (c) squares                      (d) parallelograms	2021 Exam ( 7 ) Question ( 6 )
154	If the polygon ABCD ~ polygon XYZL , then $AB \times ZL = XY \times \dots\dots\dots$	(a) ZL                      (b) AC                      (c) BC                      (d) CD	2021 Exam ( 6 ) Question ( 1 )
155	Which of the following polygons are similar ?	 <p>(1)                      (2)                      (3)                      (4)</p> <p>(a) Polygons (1) , (2)                      (b) Polygons (1) , (3) (c) Polygons (1) , (4)                      (d) Polygons (3) , (4)</p>	2021 Exam ( 3 ) Question ( 38 )

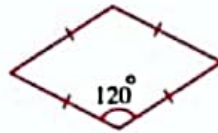


156

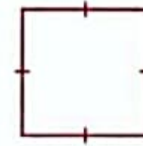
Which of the following two polygons are similar ?



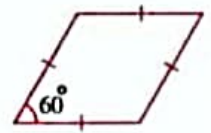
(1)



(2)



(3)



(4)

(a) polygons (1) , (2)

(b) polygons (3) , (1)

(c) polygons (3) , (4)

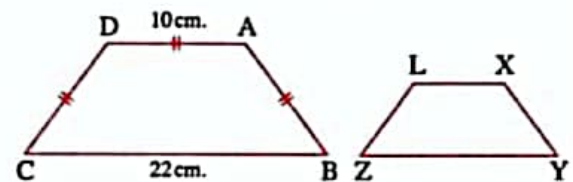
(d) polygons (2) , (4)

2021 Exam ( 10 ) Question ( 1 )

157

**In the opposite figure :**

If  $ABCD \sim XYZL$ , the perimeter of the figure  $XYZL = 26$  cm. ,  $AD = 10$  cm. ,  $BC = 22$  cm. ,  $AB = AD = DC$  , then  $\frac{AD}{XL} = \dots\dots\dots$



(a) 1 : 2

(b) 2 : 3

(c) 3 : 4

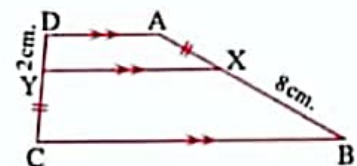
(d) 2 : 1

2021 Exam ( 8 ) Question ( 14 )

158

**In the opposite figure :**

If  $\overline{AD} \parallel \overline{XY} \parallel \overline{BC}$  ,  $AX = YC$  ,  $XB = 8$  cm. ,  $DY = 2$  cm. , then  $AX = \dots\dots\dots$  cm.



(a) 2

(b) 4

(c) 16

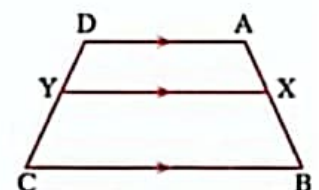
(d) 8

2021 Exam ( 8 ) Question ( 23 )

159

**In the opposite figure :**

$\overline{AD} \parallel \overline{XY} \parallel \overline{BC}$  ,  $AX : XB = 2 : 3$  ,  $CD = 15$  cm. , then  $DY = \dots\dots\dots$  cm.



(a) 3

(b) 4

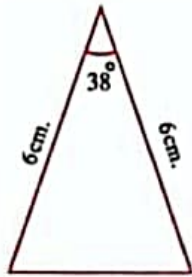
(c) 5

(d) 6

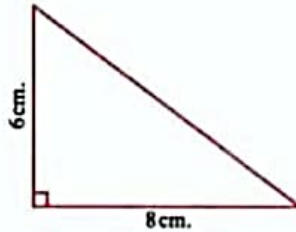
2021 Exam ( 9 ) Question ( 34 )

160

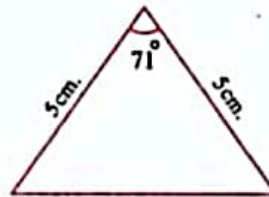
Which two triangles of the following are similar ?



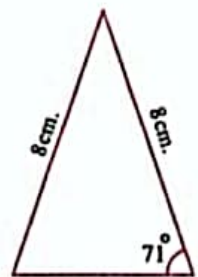
(1)

(a)  $\Delta\Delta$  (1) , (2)

(2)

(b)  $\Delta\Delta$  (2) , (3)

(3)

(c)  $\Delta\Delta$  (3) , (4)

(4)

(d)  $\Delta\Delta$  (1) , (4)

2021 Exam ( 8 ) Question ( 13 )

161

If  $\Delta ABC \sim \Delta XYZ$  , and  $2 AB = 3 XY$  , then the perimeter of  $\Delta ABC$  : the perimeter of  $\Delta XYZ = \dots\dots\dots$ 

(a) 4 : 9

(b) 9 : 4

(c) 2 : 3

(d) 3 : 2

2021 Exam ( 9 ) Question ( 28 )

162

A triangle in which two angles are of measures  $50^\circ$  ,  $70^\circ$  is similar to a triangle in which two angles are measures  $50^\circ$  ,  $\dots\dots\dots^\circ$ 

(a) 60

(b) 80

(c) 55

(d) 40

2021 Exam ( 5 ) Question ( 24 )

163

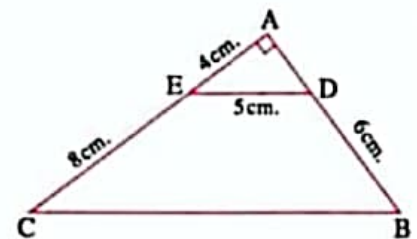
**In the opposite figure :** $\Delta ABC$  is right-angled at A, then  $BC = \dots\dots\dots$  cm.

(a) 15

(b) 20

(c) 13

(d) 21



2021 Exam ( 2 ) Question ( 27 )

164

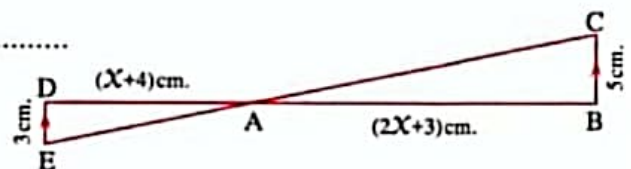
**In the opposite figure :** $\Delta ABC \sim \Delta ADE$  , then the value of  $x = \dots\dots\dots$ 

(a) 11

(b) 1

(c) 12

(d) 10

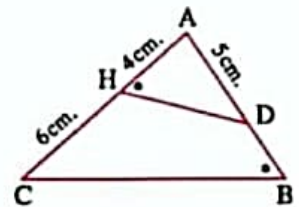


2021 Exam ( 3 ) Question ( 21 )

165

**In the opposite figure :** $m(\angle AHD) = m(\angle ABC)$  ,  $AD = 5$  cm.,  $AH = 4$  cm. ,  $HC = 6$  cm. , then  $DB = \dots\dots\dots$ 

- (a) 5 (b) 4  
(c) 3 (d) 8

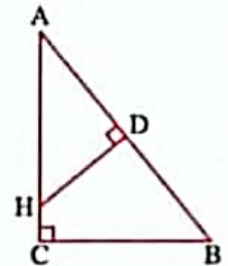


2021 Exam ( 1 ) Question ( 39 )

166

**In the opposite figure :** $\triangle ABC \sim \triangle AHD$  and if  $m(\angle B) = 3x + 10^\circ$ and  $m(\angle AHD) = x + 30^\circ$  , then  $m(\angle A) = \dots\dots\dots^\circ$ 

- (a) 50 (b) 40  
(c) 30 (d) 60

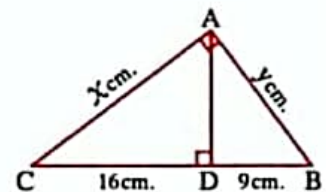


2021 Exam ( 4 ) Question ( 6 )

167

**In the opposite figure :** $\frac{y}{x} = \dots\dots\dots$ 

- (a)  $\frac{4}{3}$  (b)  $\frac{3}{4}$   
(c)  $\frac{16}{9}$  (d)  $\frac{9}{16}$

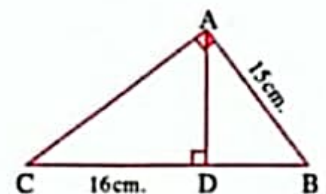


2021 Exam ( 10 ) Question ( 16 )

168

**In the opposite figure :** $ABC$  is a right-angled triangle at  $A$  ,  $\overline{AD} \perp \overline{BC}$ , then  $AD = \dots\dots\dots$  cm.

- (a) 18 (b) 25  
(c) 12 (d) 20

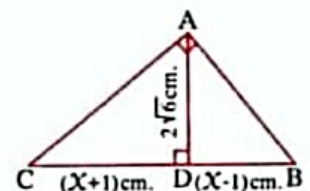


2021 Exam ( 3 ) Question ( 22 )

169

**In the opposite figure :** $x = \dots\dots\dots$  cm.

- (a) 6 (b) 7  
(c) 5 (d) 8



2021 Exam ( 2 ) Question ( 38 )



170

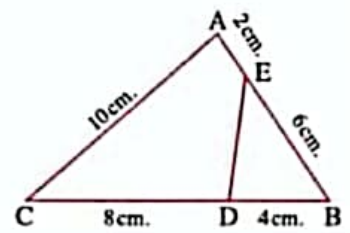
**In the opposite figure :**If  $EB = 6$  cm. ,  $CD = 8$  cm. ,  $AC = 10$  cm.,  $AE = 2$  cm. ,  $DB = 4$  cm. , then  $ED = \dots\dots\dots$  cm.

(a) 2

(b) 4

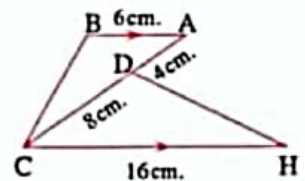
(c) 3

(d) 5



2021 Exam ( 6 ) Question ( 3 )

171

**In the opposite figure :** $AD = 4$  cm. ,  $CH = 16$  cm. ,  $AB = 6$  cm. ,  $DC = 8$  cm., then  $\frac{HD}{BC} = \dots\dots\dots$ (a)  $\frac{4}{3}$ (b)  $\frac{3}{4}$ (c)  $\frac{2}{3}$ (d)  $\frac{1}{2}$ 

2021 Exam ( 5 ) Question ( 7 )

172

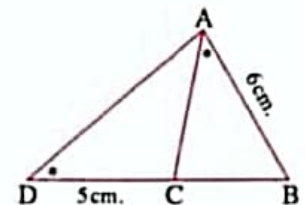
**In the opposite figure :**If  $m(\angle BAC) = m(\angle D)$  ,  $AB = 6$  cm.,  $DC = 5$  cm. , then  $BC = \dots\dots\dots$  cm.

(a) 6

(b) 9

(c) 10

(d) 4



2021 Exam ( 6 ) Question ( 8 )

173

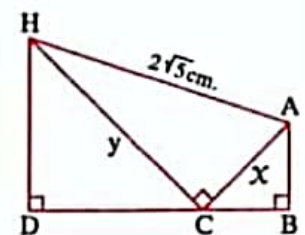
**In the opposite figure :** $\triangle ABC \sim \triangle CDH$  ,  $BC = \frac{1}{2} DH$ , then  $x \times y = \dots\dots\dots$ 

(a) 3

(b) 6

(c) 8

(d) 10

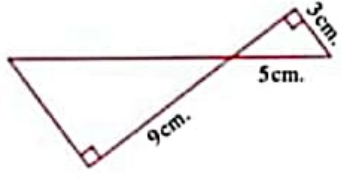


2021 Exam ( 1 ) Question ( 13 )

174

If the ratio between the length of two corresponding sides of two similar polygons 3 : 5 , then the area of greatest polygon =  $\dots\dots\dots$  the area of the smallest polygon.(a)  $\frac{9}{25}$ (b)  $\frac{25}{9}$ (c)  $\frac{3}{5}$ (d)  $\frac{5}{3}$ 

2021 Exam ( 9 ) Question ( 22 )

175	<p><b>In the opposite figure :</b>  <math>\frac{\text{The area of the smaller triangle}}{\text{The area of the greater triangle}} = \frac{\dots\dots\dots}{\dots\dots\dots}</math></p> <p>(a) <math>\frac{25}{81}</math> (b) <math>\frac{1}{3}</math>  (c) <math>\frac{16}{81}</math> (d) <math>\frac{9}{64}</math></p> <p style="text-align: right;">2021 Exam ( 8 ) Question ( 22 )</p>	
176	<p>The ratio between perimeter of two similar polygons is 4 : 9 , then the ratio between their areas is .....</p> <p>(a) 4 : 9 (b) 9 : 4 (c) 16 : 81 (d) 2 : 3</p> <p style="text-align: right;">2021 Exam ( 2 ) Question ( 23 )</p>	
177	<p>If <math>\Delta ABC \sim \Delta LMN</math> and <math>AB = 2 LM</math> , then <math>\frac{\text{area of } \Delta LMN}{\text{area of } \Delta ABC} = \dots\dots\dots</math></p> <p>(a) <math>\frac{1}{2}</math> (b) 2 (c) <math>\frac{1}{4}</math> (d) 4</p> <p style="text-align: right;">2021 Exam ( 5 ) Question ( 10 )</p>	
178	<p>Two similar triangles , its areas <math>13 \text{ cm}^2</math> and <math>52 \text{ cm}^2</math> , then the ratio between the lengths of two corresponding sides is .....</p> <p>(a) 1 : 4 (b) 1 : 2 (c) 1 : 5 (d) 2 : 1</p> <p style="text-align: right;">2021 Exam ( 8 ) Question ( 30 )</p>	
179	<p>Two similar polygons , the ratio between their areas is 4 : 25 , then the ratio between their perimeters is .....</p> <p>(a) 2 : 5 (b) 5 : 2 (c) 4 : 5 (d) 8 : 50</p> <p style="text-align: right;">2021 Exam ( 1 ) Question ( 29 )</p>	
180	<p>If the ratio between the lengths of the diagonals of two squares is 2 : 5 and the area of the smaller square is <math>4 \text{ cm}^2</math> , then the area of the greater square = ..... <math>\text{cm}^2</math></p> <p>(a) 25 (b) 16 (c) 10 (d) 20</p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 16 )</p>	
181	<p>A piece of land of the shape of rectangle its dimensions are 6 m. , 9 m. If we want to double its area by increasing each of the two dimensions by the same value , then the added value equals ..... m.</p> <p>(a) 3 (b) 5 (c) 7 (d) 9</p> <p style="text-align: right;">2021 Exam ( 4 ) Question ( 11 )</p>	

182

The ratio between the length of diameters of two circles is 3 : 5 , if the area of greater circle =  $75 \text{ cm}^2$  , then the area of smaller circle = .....  $\text{cm}^2$

(a) 81

(b) 27

(c) 25

(d) 125

2021 Exam ( 8 ) Question ( 19 )

183

**In the opposite figure :**

$\overline{AB} \cap \overline{CD} = \{E\}$  , a ( $\Delta ACE$ ) =  $100 \text{ cm}^2$

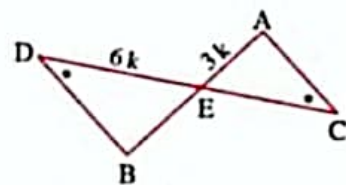
, then a ( $\Delta DEB$ ) = .....  $\text{cm}^2$

(a) 1296

(b) 1080

(c) 750

(d) 400



2021 Exam ( 3 ) Question ( 25 )

184

**In the opposite figure :**

$\overline{DB} \cap \overline{EC} = \{A\}$  , AE = 9 cm.

, AB = 10 cm. , AC = 15 cm. , DA = 6 cm.

, area ( $\Delta ADE$ ) =  $36 \text{ cm}^2$

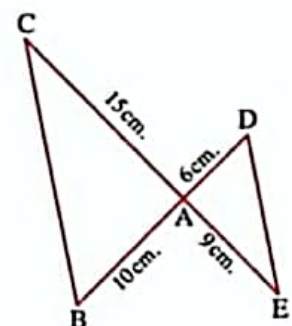
, then area ( $\Delta ABC$ ) = .....  $\text{cm}^2$

(a) 60

(b) 75

(c) 100

(d) 225



2021 Exam ( 9 ) Question ( 36 )

185

**In the opposite figure :**

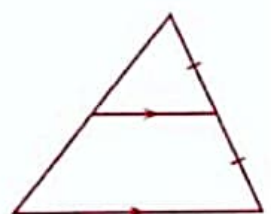
If the area of the smaller triangle =  $16 \text{ cm}^2$  , then the area of the greater triangle = .....  $\text{cm}^2$

(a) 32

(b) 8

(c) 64

(d) 24



2021 Exam ( 8 ) Question ( 18 )

186

**In the opposite figure :**

If  $\overline{ED} \parallel \overline{BA}$  , BE = 6 cm. , EC = 4 cm.

, the area of the figure ABED =  $42 \text{ cm}^2$

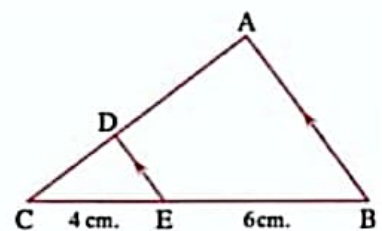
, then the area of  $\Delta CED$  = .....  $\text{cm}^2$

(a) 16

(b) 10

(c) 8

(d) 20



2021 Exam ( 6 ) Question ( 30 )



187

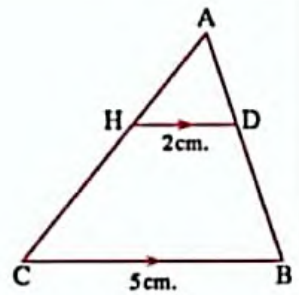
**In the opposite figure :**If the area of triangle  $ADH = 24 \text{ cm}^2$  ,  $\overline{DH} \parallel \overline{BC}$ , then the area of the shape  $DBCH = \dots\dots\dots \text{ cm}^2$ 

(a) 36

(b) 126

(c) 136

(d) 100



2021 Exam ( 1 ) Question ( 10 )

188

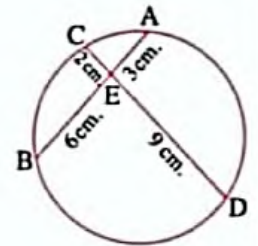
**In the opposite figure :**If  $\overline{AB} \cap \overline{CD} = \{E\}$  ,  $AE = 3 \text{ cm}$  ,  $CE = 2 \text{ cm}$  ,,  $BE = 6 \text{ cm}$  , then  $ED = \dots\dots\dots \text{ cm}$ .

(a) 9

(b) 8

(c) 7

(d) 6



2021 Exam ( 6 ) Question ( 16 )

189

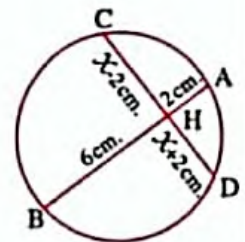
**In the opposite figure :** $AH = 2 \text{ cm}$  ,  $BH = 6 \text{ cm}$  ,  $DH = (x + 2) \text{ cm}$  ,,  $HC = (x - 2) \text{ cm}$  , then  $x = \dots\dots\dots \text{ cm}$ .

(a) 6

(b) 2

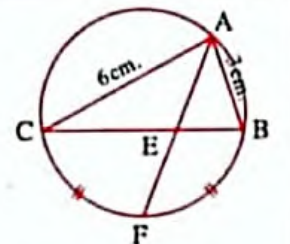
(c) 4

(d) 10



2021 Exam ( 1 ) Question ( 14 )

190

**In the opposite figure :** $\frac{BE}{EC} = \dots\dots\dots$ (a)  $\frac{1}{2}$ (b)  $\frac{1}{3}$ (c)  $\frac{3}{4}$ (d)  $\frac{3}{5}$ 

2021 Exam ( 2 ) Question ( 36 )

191

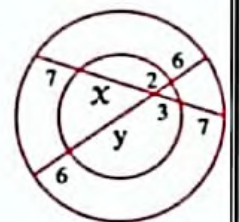
**In the opposite figure :** $(x, y) = \dots\dots\dots$ 

(a) (11 , 16.5)

(b) (11 , 15.5)

(c) (12 , 16.5)

(d) (12 , 15.5)



2021 Exam ( 3 ) Question ( 28 )



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موقع مذكرات جاهزة للطباعة

192

**In the opposite figure :**

M is a centre of semicircle

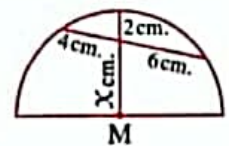
, then  $x = \dots\dots\dots$  cm.

(a) 5

(b) 7

(c) 8

(d) 12



2021 Exam ( 7 ) Question ( 10 )

193

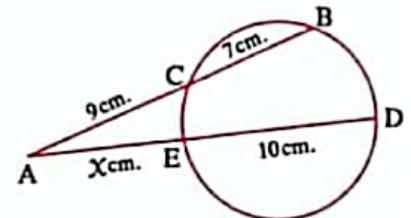
**In the opposite figure :**If  $\overline{AB} \cap \overline{AD} = \{A\}$  ,  $ED = 10$  cm.,  $AC = 9$  cm. ,  $CB = 7$  cm., then the value of  $x = \dots\dots\dots$  cm.

(a) 5

(b) 6

(c) 7

(d) 8



2021 Exam ( 6 ) Question ( 39 )

194

**In the opposite figure :**

If the length of the radius of a circle of center M is 6 cm.

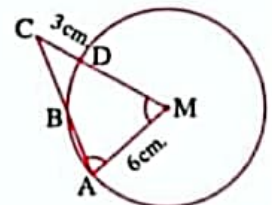
,  $CD = 3$  cm. ,  $m(\angle A) = m(\angle M)$  ,  $AM = 6$  cm., then  $CB = \dots\dots\dots$  cm.

(a) 3

(b) 4

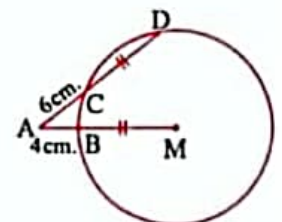
(c) 5

(d) 6



2021 Exam ( 6 ) Question ( 37 )

195

**In the opposite figure :**If  $CD = BM$  , then the circumference of the circle M =  $\dots\dots\dots$  cm.(a)  $15\pi$ (b)  $18\pi$ (c)  $20\pi$ (d)  $24\pi$ 

2021 Exam ( 4 ) Question ( 21 )

196

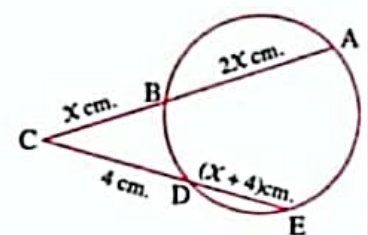
**In the opposite figure :** $x = \dots\dots\dots$  cm.

(a) 6

(b) 5

(c) 4

(d) 3



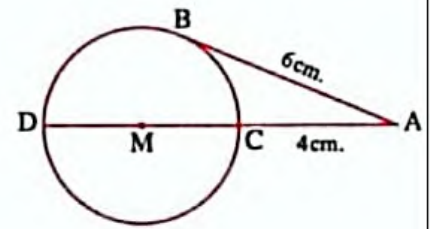
2021 Exam ( 3 ) Question ( 27 )



197

**In the opposite figure :**

If  $\overline{AB}$  is a tangent to the circle M  
 , then area of the circle = .....  $\text{cm}^2$

(a)  $6.25 \pi$ (b)  $62.5 \pi$ (c)  $25 \pi$ (d)  $10 \pi$ 

2021 Exam ( 1 ) Question ( 8 )

198

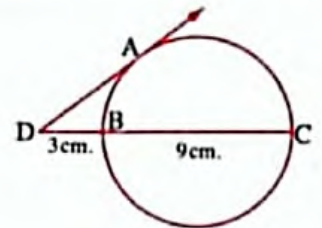
**In the opposite figure :**

$\overline{DA}$  is a tangent to the circle at A  
 , then the length of  $\overline{AD}$  = ..... cm.

(a)  $6 \frac{1}{4}$ (b)  $8 \frac{1}{4}$ 

(c) 6

(d) 7



2021 Exam ( 3 ) Question ( 23 )

199

**In the opposite figure :**

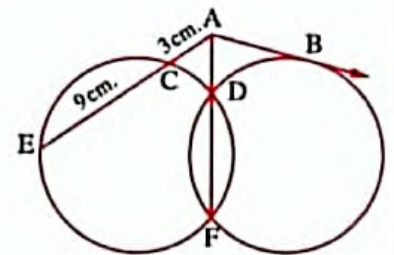
If  $AC = 3 \text{ cm}$  ,  $CE = 9 \text{ cm}$ .  
 , then  $AB$  = ..... cm.

(a) 27

(b) 36

(c) 9

(d) 6



2021 Exam ( 7 ) Question ( 16 )

200

**In the opposite figure :**

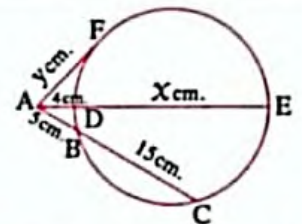
$x + y$  = ..... cm.

(a) 9

(b) 18

(c) 22

(d) 31



2021 Exam ( 2 ) Question ( 28 )

201

**In the opposite figure :**

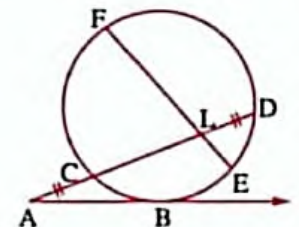
$\overline{AB}$  is a tangent to the circle at B ,  $FL = 10 \text{ cm}$ .  
 ,  $LE = 3.2 \text{ cm}$  ,  $CL = 8 \text{ cm}$  and  $AB = x \text{ cm}$ .  
 , then  $x$  = ..... cm.

(a) 8

(b) 4

(c) 6

(d) 10



2021 Exam ( 3 ) Question ( 26 )



202

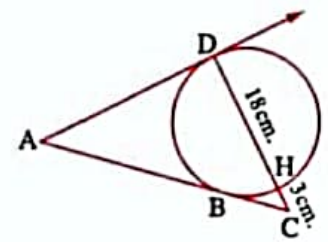
**In the opposite figure :** $\overline{AD}$  ,  $\overline{AB}$  two tangents at D , B $\overline{CH}$  cuts the circle at H , Dif  $CH = 3$  cm. ,  $HD = 18$  cm., then  $AC - AD = \dots\dots\dots$  cm.

(a)  $\sqrt{7}$

(b)  $2\sqrt{7}$

(c)  $3\sqrt{7}$

(d)  $6\sqrt{7}$



2021 Exam ( 4 ) Question ( 24 )

203

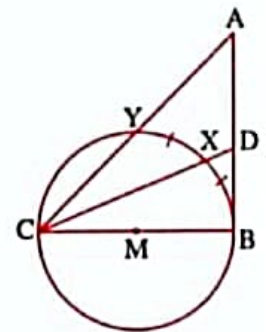
**In the opposite figure :** $\overline{AB}$  is a tangent to circle M at B $m(\widehat{BX}) = m(\widehat{XY})$  ,  $BD = 2\sqrt{3}$  cm. $AD = 4\sqrt{3}$  cm. , then  $AY = \dots\dots\dots$  cm.

(a) 3

(b) 6

(c) 9

(d) 12



2021 Exam ( 9 ) Question ( 40 )

204

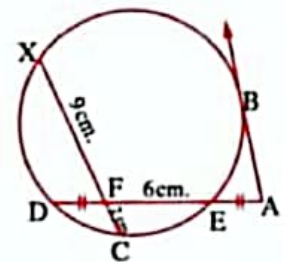
**In the opposite figure :** $\overline{AB}$  is a tangent to the circle at B $AE = FD$  ,  $EF = 6$  cm. ,  $CF = 2$  cm. $XF = 9$  cm. , then  $AB = \dots\dots\dots$  cm.

(a) 3

(b) 6

(c) 9

(d) 12



2021 Exam ( 2 ) Question ( 24 )

205

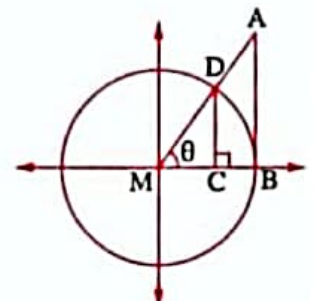
**In the opposite figure :**A unit circle M and  $\overline{AB}$  is a tangent to the circle at B $\overline{CD} \perp \overline{MB}$  , then  $\frac{AB}{CD} = \dots\dots\dots$ 

(a)  $\sec \theta$

(b)  $\cos \theta$

(c)  $\tan \theta$

(d)  $\operatorname{cosec} \theta$



2021 Exam ( 5 ) Question ( 16 )



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موقع مذكرات جاهزة للطباعة

206

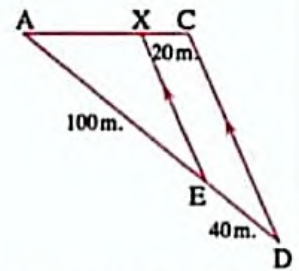
**In the opposite figure :**The length of  $\overline{AX} = \dots\dots\dots$  meter.

(a) 60

(b) 50

(c) 40

(d) 30



2021 Exam ( 10 ) Question ( 5 )

207

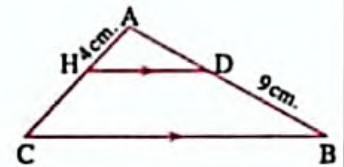
**In the opposite figure :** $AD = HC$  ,  $\overline{DH} \parallel \overline{BC}$  ,  $AH = 4$  cm. ,  $BD = 9$  cm., then  $AC = \dots\dots\dots$  cm.

(a) 4

(b) 9

(c) 10

(d) 13



2021 Exam ( 1 ) Question ( 23 )

208

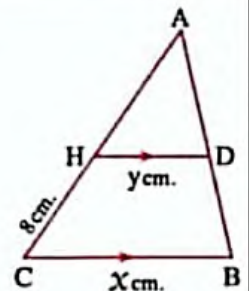
**In the opposite figure :**If  $\frac{x-y}{x+y} = \frac{2}{7}$  , then  $AH = \dots\dots\dots$  cm.

(a) 16

(b) 15

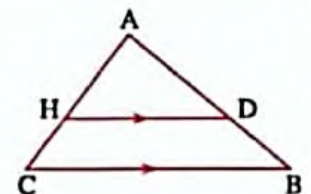
(c) 12

(d) 10



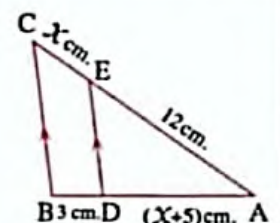
2021 Exam ( 4 ) Question ( 19 )

209

**In the opposite figure :** $\overline{HD} \parallel \overline{CB}$  ,  $\frac{AD}{BD} = \frac{5}{3}$  , then  $\frac{AB}{BD} = \dots\dots\dots$ (a)  $\frac{3}{5}$ (b)  $\frac{8}{3}$ (c)  $\frac{3}{8}$ (d)  $\frac{5}{8}$ 

2021 Exam ( 4 ) Question ( 27 )

210

**In the opposite figure :**If  $\overline{DE} \parallel \overline{BC}$  ,  $EA = 12$  cm. ,  $BD = 3$  cm.,  $DA = (x + 5)$  cm. ,  $CE = x$  cm., then the value of  $x = \dots\dots\dots$  cm.

2021 Exam ( 6 ) Question ( 25 )

**In the opposite figure :**

All of the following geometrical relations are correct except :

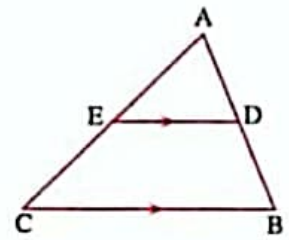
211

(a)  $\frac{AD}{DB} = \frac{AE}{EC}$

(b)  $\frac{AD}{DB} = \frac{DE}{BC}$

(c)  $\frac{AD}{AB} = \frac{AE}{AC}$

(d)  $\frac{BD}{BA} = \frac{CE}{CA}$



2021 Exam ( 3 ) Question ( 37 )

**In the opposite figure :**

$\overline{AB} \parallel \overline{CD}$  ,  $AM = 2.5$  cm. ,  $BM = 2$  cm. ,  $MD = 6$  cm.

, then  $XC = \dots\dots\dots$  cm.

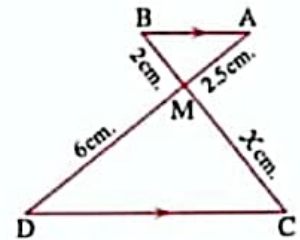
212

(a) 3.6

(b) 4

(c) 4.2

(d) 4.8



2021 Exam ( 5 ) Question ( 29 )

**In the opposite figure :**

$\overline{DX} \parallel \overline{AC}$  ,  $\overline{EY} \parallel \overline{AB}$  ,  $BC = 13.5$  cm. ,  $\frac{AD}{DB} = \frac{3}{2}$  and  $\frac{EC}{AE} = \frac{4}{5}$

, then  $XY = \dots\dots\dots$  cm.

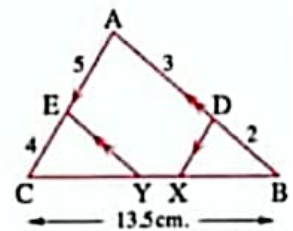
213

(a) 2.1

(b) 2.3

(c) 2.4

(d) 2.6



2021 Exam ( 3 ) Question ( 30 )

**In the opposite figure :**

If  $\overline{AD} \parallel \overline{XY} \parallel \overline{BC}$  ,  $AX = YC$  ,  $XB = 8$  cm.

,  $DY = 2$  cm. , then  $AX = \dots\dots\dots$  cm.

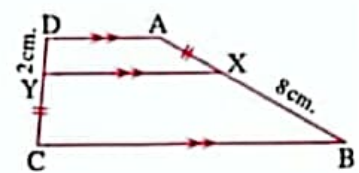
214

(a) 2

(b) 4

(c) 16

(d) 8



2021 Exam ( 8 ) Question ( 23 )

**In the opposite figure :**

$\frac{AE}{EB} = \frac{2}{3}$  ,  $FC = 6$  cm.

, then  $DF = \dots\dots\dots$  cm.

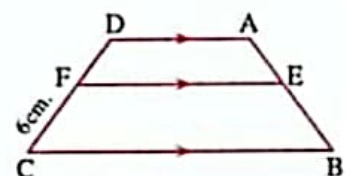
215

(a) 4

(b) 5

(c) 6

(d) 7



2021 Exam ( 2 ) Question ( 34 )



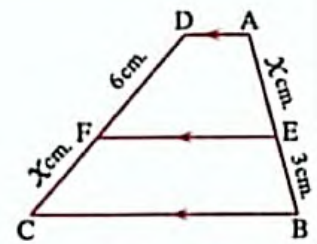
216

**In the opposite figure :** $x = \dots\dots\dots$  cm.

(a) 6

(b)  $3\sqrt{2}$ (c)  $3\sqrt{3}$ 

(d) 18



2021 Exam ( 7 ) Question ( 11 )

217

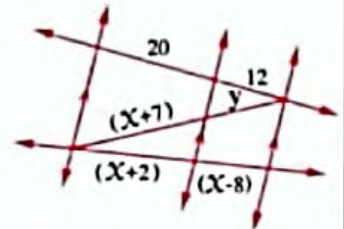
**In the opposite figure :** $x - y = \dots\dots\dots$  cm.

(a) 5

(b) 6

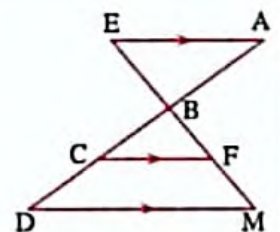
(c) 4

(d) 7



2021 Exam ( 3 ) Question ( 31 )

218

**In the opposite figure :** $AB : BC : CD = \dots\dots\dots$ (a)  $AE : FC : MD$ (b)  $EB : BF : FM$ (c)  $EB : EF : EM$ (d)  $EB : BC : CD$ 

2021 Exam ( 10 ) Question ( 8 )

219

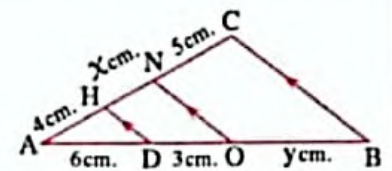
**In the opposite figure :** $\overline{DH} \parallel \overline{ON}$  ,  $CN = 5$  cm. ,  $OD = 3$  cm.,  $AD = 6$  cm. ,  $AH = 4$  cm. ,  $NH = x$  cm.,  $BO = y$  cm. , then  $x + y = \dots\dots\dots$  cm.

(a) 9.5

(b) 7.5

(c) 8.5

(d) 10



2021 Exam ( 1 ) Question ( 30 )

220

The exterior bisector of the vertex of isosceles triangle is ..... to the base.

(a) perpendicular

(b) bisects

(c) parallel

(d) equal

2021 Exam ( 10 ) Question ( 11 )

221

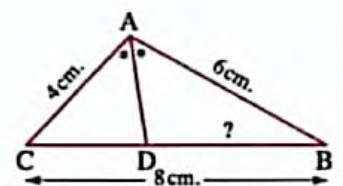
**In the opposite figure :** $\overline{AD}$  bisects  $\angle BAC$  ,  $AB = 6$  cm. ,  $AC = 4$  cm.,  $BC = 8$  cm. , then  $BD = \dots\dots\dots$  cm.

(a) 4.8

(b) 8.4

(c) 3.2

(d) 5



2021 Exam ( 8 ) Question ( 27 )

222

**In the opposite figure :**

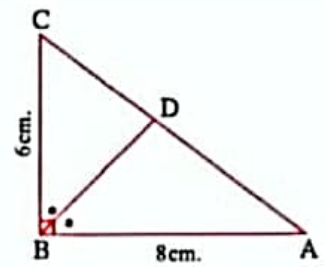
AD = ..... cm.

(a)  $5\frac{5}{7}$

(b)  $6\frac{3}{4}$

(c) 5

(d)  $\frac{4}{3}$



2021 Exam ( 4 ) Question ( 30 )

223

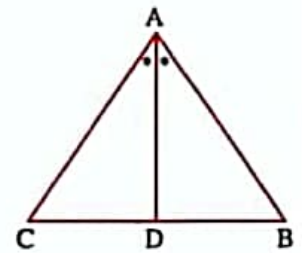
**In the opposite figure :**The length of  $\overline{AD}$  = .....

(a)  $\sqrt{AB \times AC - BD \times DC}$

(b)  $(AB)^2 + (AC)^2 - BD \times DC$

(c)  $AB + AC - BD \times DC$

(d)  $\sqrt{AB \times AC + BD \times DC}$



2021 Exam ( 10 ) Question ( 21 )

224

**In the opposite figure :**

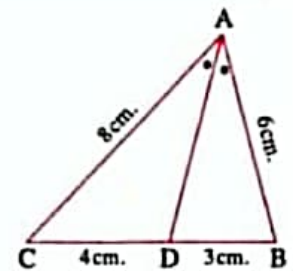
AD = ..... cm.

(a)  $\sqrt{60}$

(b) 6

(c) 7

(d)  $\sqrt{12}$



2021 Exam ( 2 ) Question ( 29 )

225

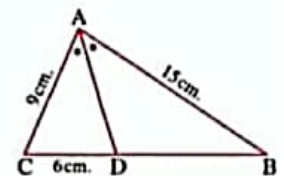
**In the opposite figure :**If  $\overline{AD}$  bisects  $\angle A$  ,  $AB = 15$  cm. ,  $AC = 9$  cm.,  $CD = 6$  cm. , then  $AD$  = ..... cm.

(a)  $5\sqrt{3}$

(b) 5

(c) 3

(d) 4



2021 Exam ( 6 ) Question ( 36 )

226

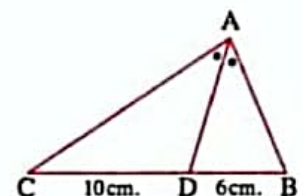
**In the opposite figure :** $BD = 6$  cm. ,  $DC = 10$  cm. and  $AC - AB = 6$  cm., then  $AC$  = ..... cm.

(a) 13

(b) 14

(c) 15

(d) 16



2021 Exam ( 5 ) Question ( 17 )



227

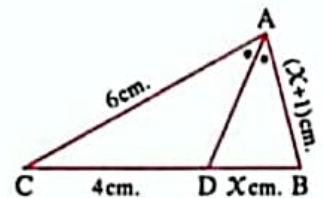
**In the opposite figure :**If  $\overline{AD}$  bisects  $\angle A$ ,  $AC = 6$  cm.,  $DC = 4$  cm. ,  $BD = x$  cm. ,  $AB = (x + 1)$  cm., then  $x = \dots\dots\dots$ 

(a) 3

(b) 4

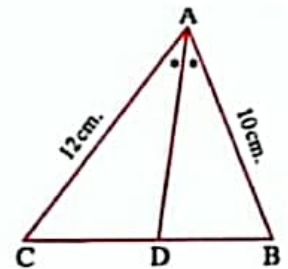
(c) 2

(d) 1



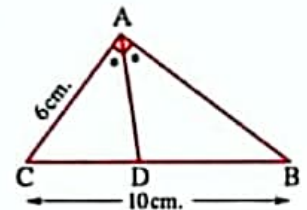
2021 Exam ( 1 ) Question ( 24 )

228

**In the opposite figure :** $\triangle ABC$  in which  $AB = 10$  cm. ,  $AC = 12$  cm.,  $\overline{AD}$  bisects  $\angle A$ , then  $BD \dots\dots\dots DC$ (a)  $>$ (b)  $<$ (c)  $=$ (d)  $\frac{1}{2}$ 

2021 Exam ( 1 ) Question ( 15 )

229

**In the opposite figure :**If  $\overline{AB} \perp \overline{AC}$ , then  $\frac{CD}{DB} = \dots\dots\dots$ (a)  $\frac{4}{3}$ (b)  $\frac{4}{5}$ (c)  $\frac{3}{4}$ (d)  $\frac{5}{4}$ 

2021 Exam ( 10 ) Question ( 26 )

230

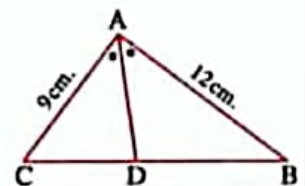
**In the opposite figure :**If the perimeter of the triangle  $ABC = 28$  cm.,  $AB = 12$  cm. ,  $AC = 9$  cm. ,  $\overline{AD}$  bisects  $\angle BAC$ , then  $BD \times DC = \dots\dots\dots \text{ cm}^2$ 

(a) 9

(b) 12

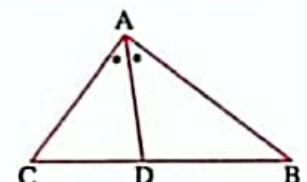
(c) 7

(d) 16



2021 Exam ( 1 ) Question ( 9 )

231

**In the opposite figure :**If  $\overline{AD}$  bisects  $\angle A$ , then  $AB \times CD = \dots\dots\dots$ (a)  $AC \times BD$ (b)  $(AD)^2$ (c)  $AD \times BD$ (d)  $AC \times AB$ 

2021 Exam ( 10 ) Question ( 10 )



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232

**In the opposite figure :**

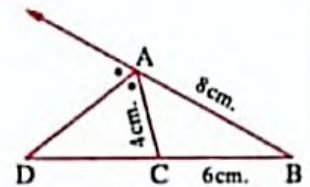
DC = ..... cm.

(a) 2

(b) 4

(c) 6

(d) 8



2021 Exam ( 4 ) Question ( 13 )

233

**In the opposite figure :**C is the midpoint of  $\overline{BD}$ ,  $AB = 12$  cm. ,  $\overline{AD}$  bisects  $\angle LAC$ 

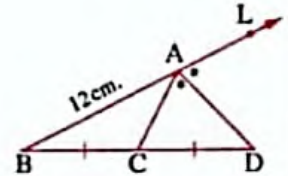
, then AC = ..... cm.

(a) 3

(b) 4

(c) 6

(d) 8



2021 Exam ( 5 ) Question ( 23 )

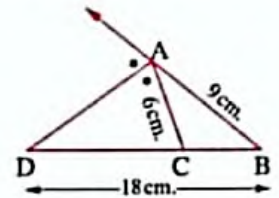
234

**In the opposite figure :**

AD = ..... cm.

(a)  $9\sqrt{2}$ 

(b) 8

(c)  $5\sqrt{6}$ (d)  $3\sqrt{6}$ 

2021 Exam ( 3 ) Question ( 32 )

235

**In the opposite figure :**The area of  $\triangle ABD$  = .....  $\text{cm}^2$ .

(a) 36

(b) 48

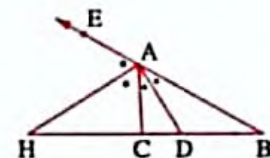
(c) 54

(d) 72



2021 Exam ( 7 ) Question ( 9 )

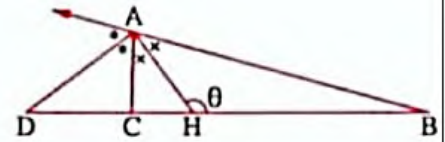
236

**In the opposite figure :**If  $\overline{AD}$  bisects  $\angle BAC$  and  $\overline{AH}$  bisects  $\angle EAC$ , then  $\frac{BD}{DC}$  = .....(a)  $\frac{BH}{HC}$ (b)  $\frac{BD}{DH}$ (c)  $\frac{AH}{AC}$ (d)  $\frac{AB}{AH}$ 

2021 Exam ( 1 ) Question ( 40 )

**In the opposite figure :**

$AD = 8 \text{ cm.}$  ,  $AH = 6 \text{ cm.}$  , then  $\tan \theta = \dots\dots\dots$



237

(a)  $\frac{-4}{3}$

(b)  $\frac{-3}{4}$

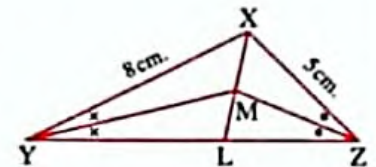
(c)  $\frac{3}{4}$

(d)  $\frac{4}{3}$

2021 Exam ( 4 ) Question ( 34 )

**In the opposite figure :**

$8 \text{ LZ} = \dots\dots\dots \text{LY}$



238

(a) 5

(b) 3

(c) 13

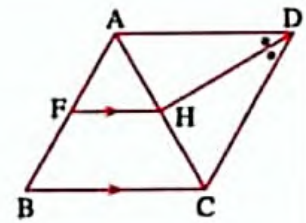
(d) 2

2021 Exam ( 3 ) Question ( 34 )

**In the opposite figure :**

$\overline{DH}$  bisects  $\angle D$  ,  $\overline{HF} \parallel \overline{CB}$

, then  $\frac{AF}{FB} = \dots\dots\dots$



239

(a)  $\frac{HF}{CB}$

(b)  $\frac{CH}{HA}$

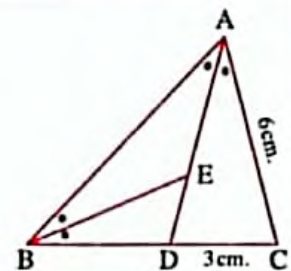
(c)  $\frac{CD}{DA}$

(d)  $\frac{AD}{DC}$

2021 Exam ( 1 ) Question ( 18 )

**In the opposite figure :**

$\frac{AE}{ED} = \dots\dots\dots$



240

(a) 2

(b) 3

(c)  $\frac{2}{3}$

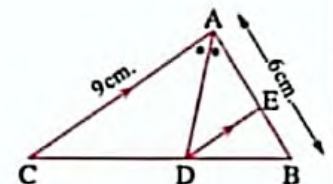
(d)  $\frac{1}{2}$

2021 Exam ( 9 ) Question ( 37 )

**In the opposite figure :**

$\overline{AD}$  bisects  $\angle BAC$  ,  $\overline{ED} \parallel \overline{AC}$  ,  $AC = 9 \text{ cm.}$

,  $AB = 6 \text{ cm.}$  , then  $AE = \dots\dots\dots \text{ cm.}$



241

(a) 3.6

(b) 2.4

(c) 3.2

(d) 5

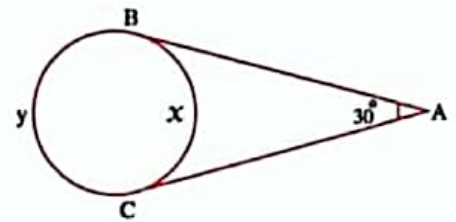
2021 Exam ( 6 ) Question ( 21 )



242	<p>The diameter of circle M is 6 cm. , <math>P_M(B) = \text{zero}</math> , then B lies .....</p> <p>(a) inside the circle. (b) outside the circle. (c) on the circle. (d) at the center of the circle.</p> <p>2021 Exam ( 7 ) Question ( 17 )</p>
243	<p>If C is a point in the plane of the circle M and <math>P_M(C) = -8</math> , then the point C lies .....</p> <p>(a) one the circle. (b) inside the circle (c) outside the circle. (d) on the center of the circle.</p> <p>2021 Exam ( 8 ) Question ( 29 )</p>
244	<p>If <math>P_M(A) = r</math> , then the point A lies ..... the circle.</p> <p>(a) on (b) outside (c) inside (d) on the centre</p> <p>2021 Exam ( 9 ) Question ( 24 )</p>
245	<p>If <math>AM = 12</math> cm. , <math>r = 9</math> cm. , where A is a point outside the circle M , then <math>P_M(A) = \dots\dots\dots</math> cm.</p> <p>(a) 65 (b) 63 (c) 49 (d) 7</p> <p>2021 Exam ( 7 ) Question ( 4 )</p>
246	<p>If the distance between a point and the centre of a circle equals 10 cm. and the power of this point with respect to the circle equals 64 , then the radius length of this circle equals ..... cm.</p> <p>(a) 8 (b) 6 (c) 7 (d) 9</p> <p>2021 Exam ( 6 ) Question ( 9 )</p>
247	<p>If <math>P_M(A) = 81</math> and <math>\overline{AB}</math> is a tangent of the circle M , then <math>AB = \dots\dots\dots</math> cm.</p> <p>(a) 18 (b) 9 (c) 6 (d) 36</p> <p>2021 Exam ( 1 ) Question ( 34 )</p>
248	<p>If M is a circle with diameter length 12 cm. , A is a point in its plane and the power of the point A with respect to the circle M equals 13 cm. , then <math>MA = \dots\dots\dots</math> cm.</p> <p>(a) 7 (b) 14 (c) 3.5 (d) 6</p> <p>2021 Exam ( 4 ) Question ( 36 )</p>
249	<p>If A is a point in the plane of circle M and <math>MA = 6</math> cm. and <math>P_M(A) = -13</math> , then the area of the circle M = ..... <math>\text{cm}^2</math> , <math>(\pi = \frac{22}{7})</math></p> <p>(a) 154 (b) 44 (c) 144 (d) 7</p> <p>2021 Exam ( 4 ) Question ( 38 )</p>



250

**In the opposite figure :** $\overline{AB}$  ,  $\overline{AC}$  are two tangents to the circle $m(\angle A) = 30^\circ$  , then  $y - x = \dots\dots\dots$  rad(a)  $\pi$ (b)  $\frac{\pi}{2}$ (c)  $\frac{\pi}{3}$ (d)  $2\pi$ 

2021 Exam ( 1 ) Question ( 19 )

251

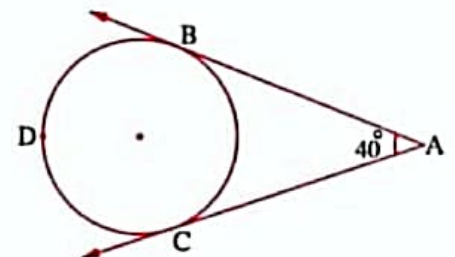
**In the opposite figure :** $\overline{AB}$  ,  $\overline{AC}$  are two tangents of the circle $m(\angle A) = 40^\circ$  ,  $m(\widehat{BDC}) = 4x^\circ$ , then value of  $x = \dots\dots\dots$ 

(a) 110

(b) 55

(c) 25

(d) 50



2021 Exam ( 9 ) Question ( 23 )

252

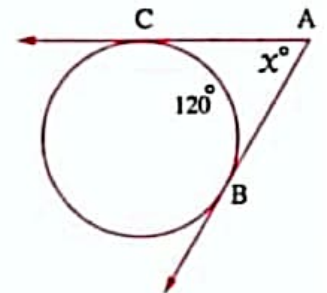
**In the opposite figure :**If  $m(\widehat{BC}) = 120^\circ$  , then  $x = \dots\dots\dots$ 

(a) 80

(b) 60

(c) 240

(d) 120



2021 Exam ( 10 ) Question ( 14 )

253

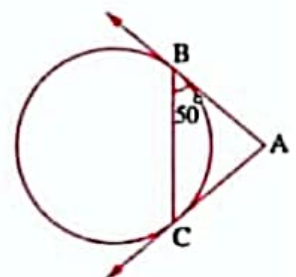
**In the opposite figure :** $\overline{AB}$  ,  $\overline{AC}$  are two tangents to the circle $m(\angle ABC) = 50^\circ$  , then the measureof the major  $(\widehat{BC}) = \dots\dots\dots$ 

(a) 200

(b) 260

(c) 160

(d) 80



2021 Exam ( 1 ) Question ( 25 )



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254

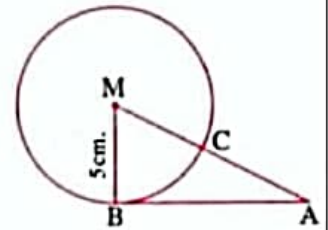
**In the opposite figure :**If  $P_M(A) = 144$  ,  $BM = 5$  cm., then  $AC = \dots\dots\dots$  cm.

(a) 18

(b) 8

(c) 12

(d) 16



2021 Exam ( 1 ) Question ( 35 )

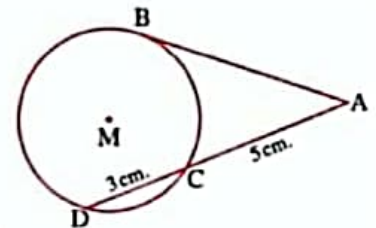
255

**In the opposite figure :** $\overline{AB}$  is a tangent to the circle at B ,  $DC = 3$  cm.,  $CA = 5$  cm. , then  $P_M(A) = \dots\dots\dots$ 

(a) 25

(b)  $(AB)^2 - r^2$ 

(c) 40

(d)  $(AM)^2 - (AB)^2$ 

2021 Exam ( 5 ) Question ( 27 )

256

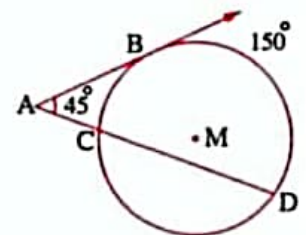
**In the opposite figure :** $\overline{AB}$  is a tangent to the circle M at B ,  $m(\angle A) = 45^\circ$ ,  $m(\widehat{BD}) = 150^\circ$  , then  $m(\widehat{BC}) = \dots\dots\dots^\circ$ 

(a) 120

(b) 90

(c) 60

(d) 180



2021 Exam ( 5 ) Question ( 21 )

257

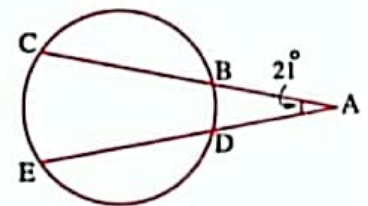
**In the opposite figure :** $m(\angle A) = 21^\circ$  , then  $m(\widehat{CE}) - m(\widehat{BD}) = \dots\dots\dots^\circ$ 

(a) 41

(b) 21

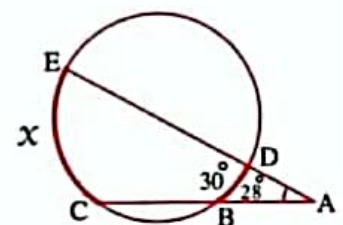
(c) 42

(d) 44



2021 Exam ( 8 ) Question ( 25 )

258

**In the opposite figure :** $x = \dots\dots\dots$ (a)  $30^\circ$ (b)  $60^\circ$ (c)  $86^\circ$ (d)  $26^\circ$ 

2021 Exam ( 7 ) Question ( 8 )

259

**In the opposite figure :**

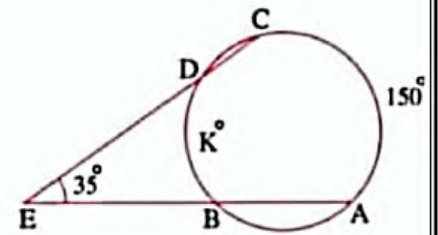
If  $\overline{AE} \cap \overline{CE} = \{E\}$  ,  $m(\angle E) = 35^\circ$   
 , then  $K = \dots\dots\dots^\circ$

(a) 100

(b) 60

(c) 80

(d) 90



2021 Exam ( 6 ) Question ( 12 )

260

**In the opposite figure :**

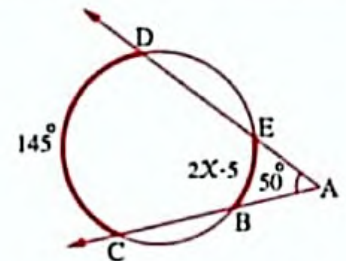
$x = \dots\dots\dots^\circ$

(a) 50

(b) 70

(c) 100

(d) 25

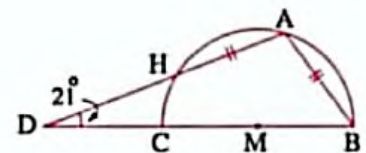


2021 Exam ( 2 ) Question ( 40 )

261

**In the opposite figure :**

$\overline{BC}$  is a diameter in circle M ,  $m(\angle D) = 21^\circ$   
 ,  $AB = AH$  , then  $(\angle A) = \dots\dots\dots$

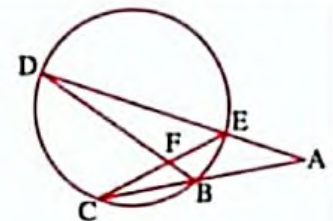
(a)  $100^\circ$ (b)  $104^\circ$ (c)  $106^\circ$ (d)  $110^\circ$ 

2021 Exam ( 4 ) Question ( 40 )

262

**In the opposite figure :**

$m(\angle DFC) + m(\angle A) = \dots\dots\dots$

(a)  $m(\widehat{DC})$ (b)  $2m(\widehat{DC})$ (c)  $m(\widehat{EB})$ (d)  $2m(\widehat{EB})$ 

2021 Exam ( 3 ) Question ( 39 )

263

**In the opposite figure :**

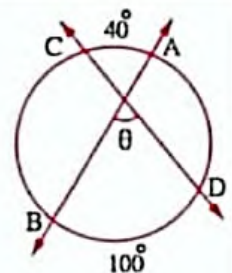
$\theta = \dots\dots\dots^\circ$

(a) 50

(b) 60

(c) 70

(d) 140



2021 Exam ( 4 ) Question ( 37 )



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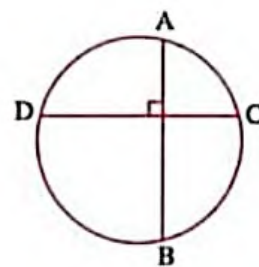
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264

**In the opposite figure :**If  $\overline{AB} \perp \overline{DC}$ , then  $m(\widehat{AC}) + m(\widehat{BD}) = \dots\dots\dots$ 

- (a)  $45^\circ$                       (b)  $90^\circ$   
 (c)  $180^\circ$                     (d)  $270^\circ$

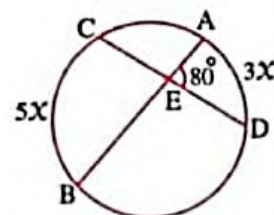


2021 Exam ( 5 ) Question ( 30 )

265

**In the opposite figure :** $x = \dots\dots\dots^\circ$ 

- (a) 10    (b) 20  
 (c) 30    (d) 40



2021 Exam ( 7 ) Question ( 13 )

**Solutions**

1	C	21	D	41	B	61	A	81	B
2	A	22	D	42	A	62	C	82	B
3	C	23	C	43	D	63	B	83	D
4	C	24	B	44	A	64	C	84	D
5	D	25	C	45	C	65	A	85	D
6	A	26	D	46	D	66	C	86	B
7	A	27	A	47	C	67	D	87	D
8	C	28	C	48	B	68	C	88	D
9	C	29	C	49	A	69	C	89	D
10	C	30	C	50	B	70	C	90	C
11	D	31	A	51	C	71	D	91	B
12	B	32	C	52	B	72	D	92	D
13	C	33	C	53	A	73	B	93	B
14	A	34	C	54	B	74	A	94	B
15	A	35	B	55	B	75	B	95	D
16	A	36	A	56	C	76	B	96	B
17	D	37	B	57	B	77	A	97	D
18	A	38	D	58	B	78	A	98	B
19	C	39	D	59	D	79	B	99	D
20	B	40	C	60	C	80	A	100	A

101	A	121	D	141	C	161	D	181	A
102	A	122	B	142	B	162	A	182	B
103	C	123	A	143	D	163	A	183	D
104	B	124	A	144	A	164	A	184	C
105	B	125	D	145	C	165	C	185	C
106	C	126	D	146	C	166	A	186	C
107	C	127	D	147	D	167	B	187	B
108	A	128	D	148	B	168	C	188	A
109	A	129	D	149	A	169	C	189	A
110	B	130	D	150	D	170	D	190	A
111	C	131	B	151	C	171	A	191	A
112	D	132	A	152	A	172	D	192	A
113	C	133	C	153	C	173	C	193	D
114	B	134	C	154	D	174	B	194	C
115	A	135	A	155	C	175	B	195	C
116	B	136	A	156	D	176	C	196	C
117	A	137	A	157	D	177	C	197	A
118	B	138	A	158	D	178	B	198	C
119	A	139	B	159	D	179	A	199	D
120	B	140	A	160	D	180	A	200	D



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204	B	224	B	244	B	264	C		
205	C	225	A	245	B	265	B		
206	B	226	C	246	B				
207	C	227	C	247	B				
208	D	228	B	248	A				
209	B	229	C	249	A				
210	D	230	B	250	C				
211	B	231	A	251	B				
212	D	232	C	252	B				
213	A	233	C	253	B				
214	D	234	A	254	B				
215	A	235	D	255	C				
216	B	236	A	256	C				
217	A	237	A	257	C				
218	B	238	A	258	C				
219	A	239	D	259	C				
220	C	240	A	260	D				


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